

CHAPTER 7

MANKATO, MINNESOTA

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**CHAPTER 7
MANKATO, MINNESOTA**

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CHAPTER 7

MANKATO, MINNESOTA

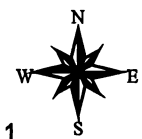
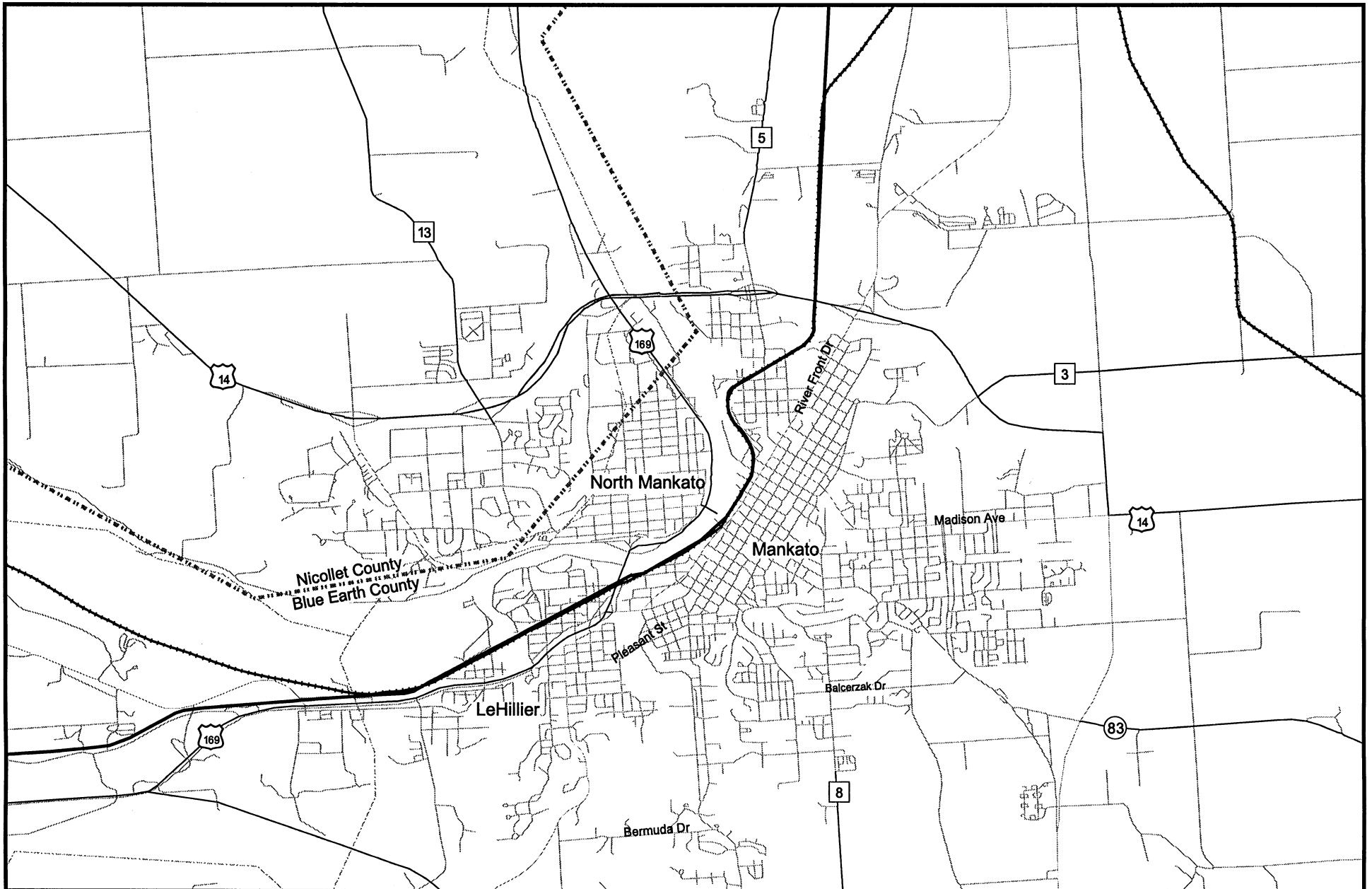
7.1 INTRODUCTION

This chapter summarizes the results of SEA's analysis of alternatives for the proposed project in the area of Mankato, Minnesota. The chapter provides a brief background on the proposed alternatives, a description of those alternatives (Section 7.2), a summary of the impacts of the alternatives and SEA's final recommendation (Section 7.3), and a comparison of impacts for each resource area (Section 7.4).

DM&E currently operates over approximately 5.8 miles of existing rail line owned and operated by Union Pacific Railroad Company (UP) through Mankato, Minnesota subject to a trackage rights agreement with UP (Figure 7-1). DM&E's existing rail line ends approximately 1.2 miles northeast of Mankato, near Benning, Minnesota, where it joins the existing UP rail line. DM&E's rail line does not begin again until approximately 1.0 mile west of Mankato, in LeHillier, where it branches from the UP rail line. The UP rail line bridges the gap in the DM&E rail line through Mankato. Before submitting its Application to the Board, DM&E developed a series of alternatives for constructing a rail line connection at Mankato to connect its system and bypass the use of UP's rail line.

In its February 20, 1998 Application, DM&E proposed four alternatives for the Mankato area. These included the No-Action Alternative (M-1), a southern connection route (M-2), an existing rail corridor alternative (M-3), and a northern connection route (M-4). Subsequent to filing its application, DM&E determined that Alternative M-4 would not be feasible because of extensive cuts, fills, and severe operational constraints and potential environmental impacts associated with crossing the wide flood plain of the Minnesota River. SEA analyzed the remaining three alternatives in the Draft EIS.

In the Draft EIS, SEA analyzed the potential environmental impacts of DM&E's proposed M-3 alignment, which would require construction of a new rail line within UP's rail right-of-way. Because Alternative M-3 would require DM&E to cross the existing UP rail line and use the narrow corridor owned by UP, SEA requested that DM&E submit more detailed drawings of the M-3 alignment. DM&E provided this information, allowing SEA to determine where the Alternative M-3 alignment would be located. More specifically, the additional design information showed SEA which side of the UP rail line the proposed alternative would be located at specific points along the rail line. This information was necessary for SEA to appropriately assess the potential environmental impacts of the alignment.



1 0 1 Miles



DM&E



Union Pacific



County Line



Roads

Figure 7-1
POWDER RIVER BASIN EXPANSION PROJECT
Existing Rail Lines
Mankato, Minnesota

In contrast to Alternative M-3, Alternative M-2, the Southern Route Alternative, would primarily cross open terrain where shifting the alignment a few feet would have little impact on the overall potential environmental impacts of the alternative. As such, SEA did not request additional or more detailed information on Alternative M-2. In the Draft EIS, SEA evaluated the alignment described in DM&E's Application.

While SEA prepared the Draft EIS, DM&E continued evaluation of Alternative M-2. This additional evaluation identified engineering constraints along the alignment proposed for Alternative M-2. These constraints included constructing the rail line along the side slope of a hill above several residences, substantial cuts and fills across the Blue Earth River flood plain, and a complicated crossing of the Blue Earth River and County Highway 90 at the point where the highway crosses the river. DM&E determined that realigning Alternative M-2 in the Blue Earth Valley would reduce these engineering constraints as well as the potential environmental impacts. However, DM&E did not provide this new alignment to SEA until the final stages of preparing the Draft EIS, and then only as part of SEA's preparation of figures for the Draft EIS. Thus, the maps provided in the Draft EIS accurately reflected the proposed alignment for Alternative M-2. However, the description of the alignment location and associated potential environmental impacts in the Draft EIS pertain to the alignment presented in DM&E's Application.

Generally, the impacts of the two alternatives are similar: they both cross many of the same roads and streams; affect a similar number of homes (although the specific homes affected are different); and would result in similar impacts to land use, vegetation, wildlife, and other resources. However, the changes in the Alternative M-2 alignment presented the potential for impacts to the community of Skyline, the Mount Kato ski area, and the Indian Creek Flood Control Diversion Channel. Therefore, SEA has conducted a complete analysis of the revised alignment of Alternative M-2 for comparison in this Final EIS.¹ The results of this analysis are presented later in this chapter.

SEA received numerous comments concerning the Mankato Alternatives, including comments from the City of Mankato, Blue Earth County, the City of Skyline, and a number of citizens. These comments generally pertained to the description of Alternative M-2 and potential environmental impacts, or to a potential No-Action Alternative whereby DM&E would operate a limited number of trains over UP trackage rights. In the remainder of this chapter, SEA discusses these issues, summarizes information presented in the Draft EIS, and summarizes the additional

¹ In the absence of detailed engineering from DM&E, Blue Earth County undertook a comprehensive review of Alternative M-2, which included developing plans, profiles, and cross-sections of the proposed alignment, and submitted as part of its comments on the Draft EIS an engineered route for Alternative M-2.

analysis SEA conducted. Appendix B includes a summary of specific issues identified in the comments received on the Draft EIS by topic and SEA's responses to those issues.

7.2 DESCRIPTION OF ALTERNATIVES

7.2.1 ALTERNATIVE M-1: NO-ACTION

In its February 1998 Application, DM&E indicated that operational constraints and the necessity for DM&E to operate over UP trackage in Mankato required DM&E to construct a new rail line to connect the two ends of its existing system on the east and west sides of Mankato. Although DM&E has trackage rights to operate its trains through Mankato, these rail operations are subject to approval and control of UP. That is, UP must give DM&E approval each time DM&E wishes to operate a train over this line. This subjects DM&E to control by another rail carrier, leading at times to delayed and restricted movements of DM&E trains in Mankato. As such, DM&E proposed to construct a connecting track at Mankato to allow it continuous operation over its own rail line, avoiding UP's tracks.

In the Draft EIS, SEA determined that if the project is approved by the Board, an Action Alternative in Mankato would be required. This determination was based on information in DM&E's Application indicating that even at the low levels of traffic DM&E currently operates through Mankato, it experiences delays and conflicts due to UP control of the rail line. Additionally, SEA determined that approval of this project and the projected increases in rail traffic associated with it would only exacerbate the problems at Mankato. If the proposed project is approved, DM&E would become a direct competitor with UP for PRB coal transport, making it less likely that UP would improve the movement of DM&E's trains in Mankato. Trackage rights restrictions in Mankato combined with increased DM&E rail traffic would likely result in additional delays and system tie-ups in DM&E's existing system for both coal and other freight traffic. These delays would reduce the efficiencies and competitive advantage DM&E seeks by this proposal, possibly to the point of making the project non-viable. Therefore, SEA concluded in the Draft EIS that the only No-Action Alternative for consideration through Mankato was total project denial.

Since release of the Draft EIS, SEA received numerous comments expressing concern that the Draft EIS did not consider a No-Action Alternative involving overall project approval but no new construction in Mankato. Commenters noted that under this alternative, the Board could grant approval for DM&E to expand into the PRB, but deny DM&E authority for construction of a connecting track in Mankato. This scenario would require DM&E to continue to operate over its existing trackage rights agreement with UP in Mankato, including the operation of unit coal

trains associated with this project. Commenters, including the City of Mankato, indicated that DM&E is currently operating trains through Mankato and expressed concern that there is nothing to preclude it from operating unit coal trains over its trackage rights.

Moreover, in comments to the Draft EIS, DM&E stated:

Initially, DM&E believed that continued operation over Union Pacific rail line in Mankato via existing trackage rights was not practicable. Given the discussions, research and analysis since our original application, however, DM&E wishes to convey to the STB its current belief that DM&E may be able to operate in the Mankato area over the existing Union Pacific line. The Draft EIS includes Alternative M-1 – the No-Action Alternative for Mankato – and is described as the “denial of DM&E’s Application.” If this denial is limited to the construction in the Mankato area, DM&E believes it is a viable alternative which merits further consideration between now and the Final EIS. However, if the above-quoted reference implies denial of the entire Project, then DM&E would propose a new Alternative M-4 for the Mankato area, which would consist of continued operation through Mankato on existing trackage rights without the construction of an independent DM&E line, while also approving the balance of the Project. Comment on the Draft EIS dated March 6, 2001 from Holland & Hart, page 28.

In response to these comments, SEA undertook additional review of the situation in Mankato to determine if a No-Action Alternative in Mankato (including overall project approval but no new construction in Mankato) would be a reasonable and feasible project alternative, even though SEA concluded in the Draft EIS that such an alternative would not be reasonable or feasible. SEA re-evaluated the information submitted by DM&E on its operations through Mankato and required DM&E to submit a copy of its trackage rights agreement with UP for SEA review. After completing its additional investigation, SEA concluded that, while there is nothing in UP or DM&E’s operations or the trackage rights agreement between the two carriers that would preclude DM&E from operating unit coal trains through Mankato, there is also nothing that would enable DM&E’s projected unit coal trains to operate more efficiently than the existing rail traffic.

SEA believes that at a minimal levels of coal transport, DM&E may be able to operate some projected unit coal trains over UP trackage rights. However, SEA believes that there is no mechanism in the trackage rights agreement to ensure that UP would not seek to maintain a competitive advantage over DM&E by constraining DM&E’s access to the UP tracks through Mankato. These problems could potentially occur even at the 20 million ton level of annual coal

transport (8 coal trains per day), which is the lowest level of traffic for the project to break even. System problems even at this level could jeopardize DM&E's ability to attract coal shippers and thus make it difficult to generate the revenue required to pay off the project. Should this occur, DM&E would be left with the financial burden of the project and insufficient revenue to pay for it. This would jeopardize the financial viability of DM&E as an operating railroad. At the higher levels of traffic contemplated for this project (up to 37 trains per day), the bottleneck created in Mankato would likely result in problems throughout DM&E's entire system, as well as potentially interfere with UP operations. Therefore, SEA has determined that the No-Action Alternative in Mankato — project approval but denial of construction of a connecting track for Mankato — is not a feasible alternative for the project. Thus, as described in the Draft EIS, the No-Action Alternative would involve total project denial by the Board. No new rail construction extending DM&E's existing system into the PRB or at Mankato would occur. DM&E would continue to operate through Mankato over its existing trackage rights on UP at its existing traffic levels.

7.2.2 ALTERNATIVE M-2: MANKATO SOUTHERN ROUTE ALTERNATIVE

Because the description of the location of Alternative M-2 provided in the Draft EIS did not match the figures of the alignment, numerous commenters requested that SEA clarify the location of Alternative M-2. As discussed above, DM&E revised the original alignment of Alternative M-2 to avoid engineering constraints and environmental impacts. The following provides a detailed description of the revised Alternative M-2 Alignment. Figures 54, 57, 56, 55, 49, and 48 in Volume V of the Draft EIS, show the location of the proposed alignment. The descriptions of the other Mankato alternatives, M-1 and M-3, in the Draft EIS do not require modification. Detailed descriptions of these alternatives are found in Chapter 2 of the Draft EIS.

The Mankato Southern Route Alternative, Alternative M-2, would be approximately 14.8 miles long and would be located entirely in Blue Earth County (Figure 7-2). It would extend southwest from DM&E's existing rail line, approximately 2.25 miles east of Eagle Lake, Minnesota, in the southeast corner of Sec. 16, T108N, R25W. Alternative M-2 would extend to the southwest for approximately 9.0 miles. It would cross County Route 27 in the center of Sec. 19, T108N, R25W, approximately 1.5 miles south of the community of Eagle Lake. Alternative M-2 would cross State Route 83 in the southwest quarter of Sec. 24, T108N, R26W. It would pass 0.5 mile north of the LeSueur River and cross State Route 22 in the south quarter of Sec. 28, T108N, R26W.

After crossing State Route 22, Alternative M-2 would cross the northwest quarter of Sec. 32, and the southeast quarter and into the southwest quarter of Sec. 31, T108N, R26W. Here it would curve to a northwesterly direction through Sec. 36, T108N, R27W. Alternative M-2

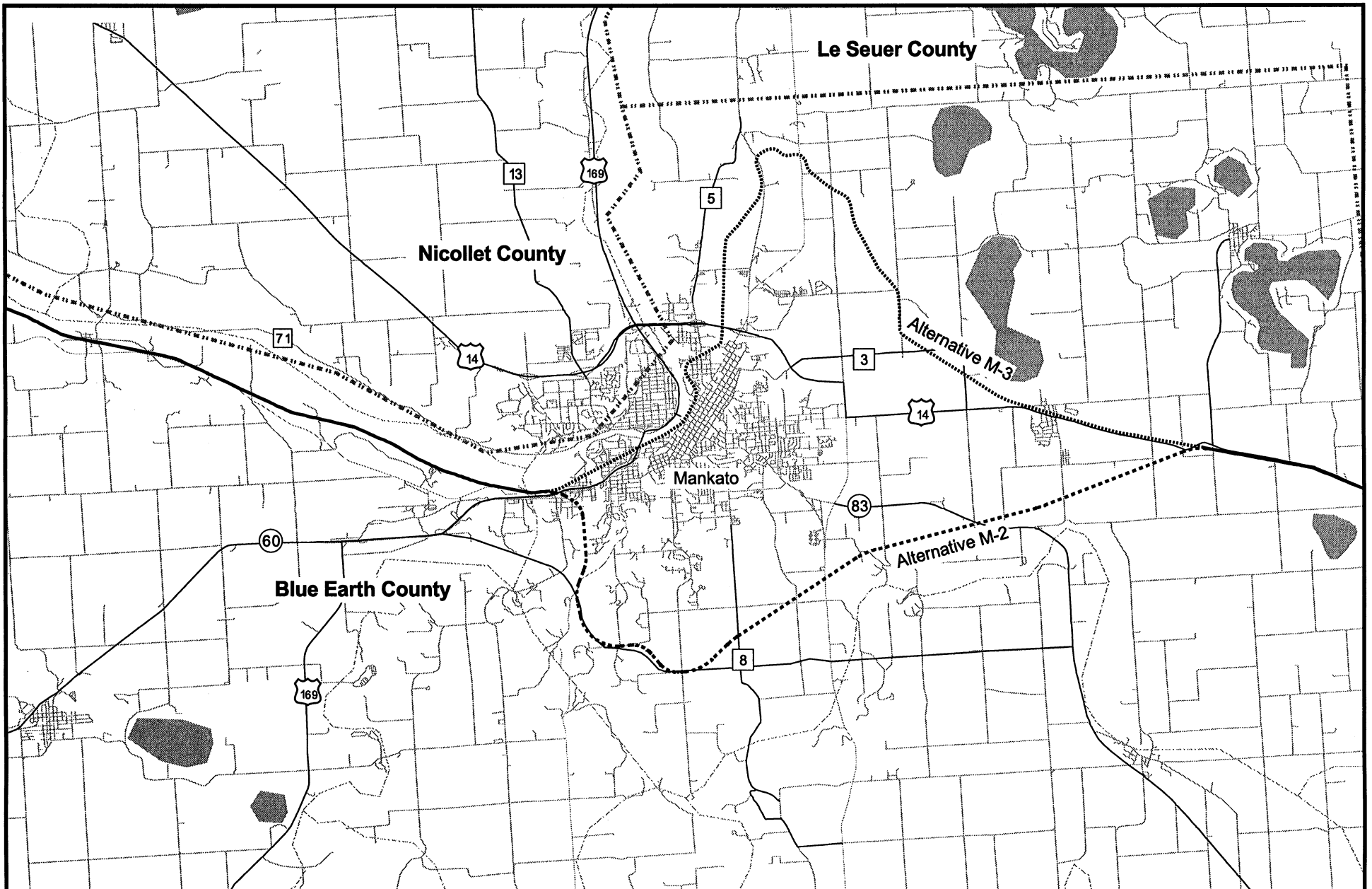
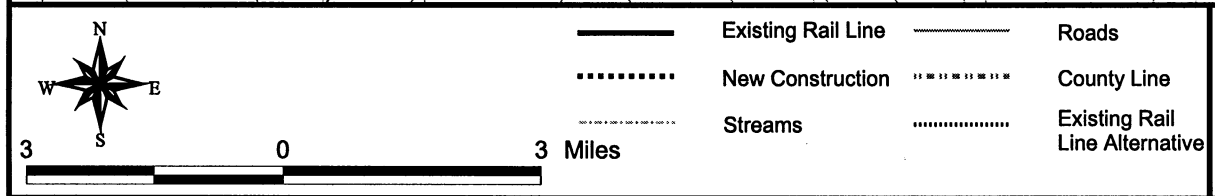


Figure 7-2
POWDER RIVER BASIN EXPANSION PROJECT
Mankato Alternatives
Mankato, Minnesota



would continue in a westerly direction and then a northwesterly direction through Sections 36 and 35, respectively, staying between approximately 0.5 to 1.0 mile northeast of the LeSueur River. At the northwest corner of Sec. 35, T108N, R27W, Alternative M-2 would be located at the southern end of Mount Kato Ski Area adjacent to County Highway 90, approximately 200 feet south of the chair lifts. Alternative M-2 would continue north crossing County Highway 66 with a grade separated crossing near the center of Sec. 26, T108N, R27W, approximately 0.5 mile northeast of the confluence of the Blue Earth and LeSueur rivers.

Alternative M-2 would continue north, cross the Indian Creek Flood Diversion Project and pass between the Blue Earth River and the community of Skyline. In this section, a cut in the hillside would require the use of retaining walls on the uphill slope to minimize the amount of uphill slope to be affected. Alternative M-2 would cross the Blue Earth River near the north/south center line of Sec. 23, T108N, R27W, approximately 3,000 feet due west of the Grand View Cemetery in Skyline. Alternative M-2 would then curve to the west through the west side of the community of LeHillier, crossing County Highway 69 and passing northeast of the Hillcrest Care Center on a slope below the center. Shortly before passing the Hillcrest Care Center, Alternative M-2 would enter an enclosed structure and pass under U.S. Highway 169 in the southwest corner of Sec. 14, T108N, R27W. Alternative M-2 would run parallel to U.S. 169/60 easterly for approximately 1,600 feet where it would join the existing DM&E rail line west of LeHillier.

According to DM&E's Application, Alternative M-2 would cost approximately \$40 million to construct.

7.2.3 ALTERNATIVE M-3: EXISTING RAIL CORRIDOR ALTERNATIVE

SEA did not receive any comments concerning the location of Alternative M-3. However, the following provides a detailed description of this alignment so that all three alignments are available in this chapter for the reader. Alternative M-3 would involve the construction of a new DM&E rail line within existing rail corridors through Mankato. The alternative would use approximately 15.9 miles of existing rail corridor through the City of Mankato to create a connection between two portions of existing DM&E rail line on either side of Mankato (Figure 7-2).

Alternative M-3 would begin east of Eagle Lake and would include rebuilding approximately 10.1 miles of the existing DM&E rail line westward and northwest to the point where it joins the existing UP track just outside the northern corporate boundary of Mankato. At this point, DM&E would construct approximately 5.8 miles of new rail line that would run

parallel to the existing UP rail line within UP's existing rail corridor. Alternative M-3 would extend south and pass along the east side of the UP rail yard and under the Highway 14 Bypass, remaining parallel to the existing UP rail line to Pine Street. Just east of Pine Street, Alternative M-3 would generally continue to parallel the UP rail line but curve away from the UP rail line to pass through the north end of an existing quarry and underneath the UP rail line. It would continue westward between several commercial buildings and along the Minnesota River. The alternative would turn towards the south and again run parallel to the north side of the UP rail line along the Minnesota River. It would remain between the Minnesota River flood wall and the existing UP rail line through Mankato and pass under U.S. Highway 169. Alternative M-3 would remain north of the existing UP rail line within the existing UP corridor past Sibley Park, Land of Memories Park, and across the Blue Earth River, where it would rejoin existing DM&E track west of LeHillier, Minnesota.

When discussing Alternative M-3, the term "existing corridor" denotes the combination of both DM&E and UP rail corridors through Mankato within which DM&E would rehabilitate existing DM&E rail line and construct new rail line adjacent to the UP rail line. DM&E's construction of a new rail line within the UP rail corridor would require UP's permission to grant access to the right-of-way for construction.

SEA has estimated the cost of constructing Alternative M-3 to be approximately \$30 million, assuming a cost of \$2 million per mile. SEA believes the operating costs associated with Alternative M-3 should be similar to those for Alternative M-2.

7.3 RECOMMENDED ALTERNATIVE

7.3.1 DRAFT EIS

In the Draft EIS, SEA evaluated three alternatives for Mankato: the No-Action Alternative (M-1); the Mankato Southern Route Alternative (M-2); and the Existing Rail Corridor Alternative (M-3). Based on the evaluation in the Draft EIS, SEA concluded the following:

- Alternative M-1, the No-Action Alternative, would result from a Board decision to deny authority for DM&E to construct and operate a new rail line extension into the PRB. If the Board granted such authority to DM&E, an action alternative in Mankato would be necessary because of the operational conflicts with UP and the necessity for DM&E to operate over rail line controlled by a railroad with which it would be in direct competition for PRB coal transport. Without an action alternative, DM&E would be unable to create an efficient system of transportation of PRB coal to eastern markets and would likely be

unsuccessful at obtaining sufficient coal transportation contracts to support the proposed project.

- Alternative M-2 would involve new construction of a rail line south of Mankato through generally undeveloped farmland and woodlands. Due to the rural location, Alternative M-2 would have few impacts to human resources (such as noise and safety), with the strong exception that it would require the removal of five houses. Alternative M-2 would have potentially substantial impacts to the natural resources, such as soils, prime farmland, water resources, vegetation, and wildlife.
- Alternative M-3 would have little impact to natural resources, but could have significant impacts to human resources along the existing route, particularly in the areas of noise, vibration, and safety. Additionally, Alternative M-3 could have disproportionate impacts to environmental justice communities as a result of increased noise levels.
- Additional information that was unavailable at the issuance of the Draft EIS would be necessary to determine the potential vibration impact of Alternative M-3 to flood control projects along the Minnesota River for the communities of LeHillier and Mankato.

After full consideration of the Mankato alternatives in the Draft EIS, SEA determined that Alternative M-3 would have significant impacts on noise-sensitive receptors and vibration-receptors and that extensive mitigation measures may be needed to ensure the continued integrity of the local flood control projects. Further, SEA indicated that Alternative M-2 also has substantial impacts and locating additional rail line construction on an existing rail corridor generally is preferable and has less impact to the environment than constructing new rail line on previously undisturbed land. But because of the legal constrictions associated with Alternative M-3, Alternative M-2 was the only remaining feasible alternative, and therefore, SEA preliminarily identified it as the environmentally preferable alternative.

At the time of the Draft EIS, DM&E and the City of Mankato had been in the process of negotiating an agreement based on the assumption that DM&E would be permitted by UP to construct a DM&E-owned rail line within the UP, and would operate its trains through the town of Mankato. In its comments on the Draft EIS, the City of Mankato informed SEA that it had withdrawn from a previously-negotiated agreement, and therefore, does not have a negotiated agreement with DM&E.

7.3.2 FINAL EIS

In response to comments, SEA has conducted additional analysis of the Mankato alternatives as part of this Final EIS. SEA conducted this additional analysis to provide more exact information on the potential environmental impacts of Alternative M-2, obtain more complete information on the potential impacts of Alternative M-3 (particularly to local flood control projects), and respond to comments received on the analysis presented in the Draft EIS. Generally, SEA's additional analysis has supported SEA's findings in the Draft EIS.

SEA also did additional evaluation of the potential vibration impacts of Alternative M-3 and determined the following:

- Based on data gathered during vibration testing and modeling rail vibration from existing or proposed operations would not be sufficient to cause damage to the Mankato flood control structures.
- Structures would need to be less than 50 feet from the rail line to potentially experience structural damage due to project related vibration. SEA did not identify any structures within 50 feet of the proposed rail line.

Recommended Alternative

Based on all the available information, SEA has determined that both Alternatives M-2 and M-3 would have potentially significant environmental impacts to different resources. However, should the Board ultimately approve the project, imposition of SEA's recommended mitigation measures included in Chapter 12 would minimize these impacts for Alternatives M-2 and M-3.

SEA recognizes, as indicated in the Draft EIS, that locating additional rail line construction in an existing rail corridor generally is preferable and has less impact to the environment than constructing new rail line on previously undisturbed land. SEA believes that the potential impacts of Alternative M-3 are less significant than those associated with Alternative M-2 with implementation of appropriate mitigation. Therefore, SEA believes that Alternative M-3 is the environmentally preferable alternative for the Mankato connection track, should the Board

approve the project, and should UP permit DM&E to construct and operate a rail line within UP's right-of-way.²

However, the Board has no authority to force UP to allow DM&E to construct new rail line within the UP-owned right-of-way. Therefore, Alternative M-3 could not be built and operated without some type of agreement between UP and DM&E. Absent an agreement between DM&E and UP, Alternative M-3 is not a feasible alternative. Therefore, if the Board approves the proposed PRB Expansion Project, the Board could only approve Alternative M-3 on the condition that DM&E and UP reach a mutual agreement allowing DM&E to construct and operate Alternative M-3. Without such an agreement, Alternative M-2 would be the only feasible action alternative in Mankato.

If DM&E and UP reach an agreement for the construction and operation of Alternative M-3, construction and operation of Alternative M-3 would become a feasible alternative. As described above, SEA would consider Alternative M-3 to be the environmentally preferable alternative for the Mankato connecting track. Because the Board may conditionally approve Alternative M-3 as its preferred alternative, SEA has included mitigation for both Alternative M-2 and Alternative M-3 in Chapter 12. The remainder of this chapter describes the impacts of the alternatives for each of the resource areas SEA evaluated.

7.4 COMPARISON OF IMPACTS

The following discussion outlines the potential impacts to various resource areas associated with the construction and operation of the Mankato alternatives. Potential impacts presented in this section include those described in the Draft EIS, as well as those that resulted from additional analysis SEA conducted in response to comments.

SEA received numerous comments from citizens and agencies related to various portions of the Mankato alternatives. Comments related to Alternative M-3 were generally related to issues of noise, vibration, and the flood control projects, as well as the feasibility of DM&E constructing an additional rail line within existing right-of-way owned by another railroad company, UP. Comments related to Alternative M-2 were generally related to the accuracy of the Draft EIS in describing the proposed bypass route, and the potential impacts along this route (See Appendix B).

² SEA is unaware of any conversations or negotiations between UP and DM&E regarding DM&E constructing and operating Alternative M-3.

As explained earlier in this chapter, SEA's analysis of Alternative M-2 in the Draft EIS was based on the route that DM&E presented in its Application to the Board. However, DM&E continued to refine the proposed bypass route. Therefore, SEA conducted additional analysis on DM&E's most recent alignment for presentation in this Final EIS. The following sections present a summary of the existing conditions along the Mankato alternatives and, as appropriate, information presented in the Draft EIS on the potential impacts of the Mankato alternatives, a summary of comments received on the Draft EIS analysis, and additional analysis SEA conducted for each resource area. Because DM&E revised the Alternative M-2 alignment, SEA has included a discussion of the potential impacts of the Mankato alternatives to all resources, not just those about which comments were received or additional analysis conducted.

7.4.1 CLIMATE

The climate in the Mankato area is described as having cold winters and warm summers. The average daily high temperature in winter is 30.0 degrees F with an average daily low temperature of 9.6 degrees F. The average summer high temperature is 80.0 degrees F, with an average summer low temperature of 70.0 degrees F. No impacts to the climate in the project area would result from the construction and operation of any of the Mankato alternatives.

7.4.2 TOPOGRAPHY

Topography describes the contours and elevation of the project area, or "the lay of the land." The topography in the area of the Mankato alternatives can generally be described as gently rolling to hilly terrain with steep slopes along major rivers, with large areas of flat farmland. Mount Kato is a prominent feature in the southwestern portion of the Mankato area. The following is a description of the potential impacts to topography that could result from the Mankato alternatives.

Alternative M-1: No Action

Any changes that would have occurred to the local topography when the existing rail line was constructed over 100 years ago have become a part of the landscape. Because no new construction would occur with this alternative, no change to the topography along the existing rail line would result from this alternative.

Alternative M-2: Southern Route Alternative

The topography along Alternative M-2 ranges from flat farmland to steep hills. The eastern portion of this alternative, near Eagle Lake, is dominated by flat to moderately flat farmland. The topography of the west side of the project, including the area near the communities of Skyline and LeHillier, consists of steep hills adjacent to river valleys.

Of the three Mankato alternatives, Alternative M-2 would result in the greatest changes to the local topography. These changes result from cut and fill that would be necessary to create a suitable grade for the proposed rail line. In two particular locations, between the community of Skyline and the Blue Earth River, and again where it would pass south of the Red Jacket trail, adjacent to County Highway 90, the proposed rail grade would cut perpendicular to a steep slope. This would require cutting into the slope on the uphill side of the tracks and filling on the downhill side of the track. This operation would be necessary to achieve a level base for the rail bed. Because there are steep side slopes and changes in topography of up to several hundred feet in these areas, substantial cut and fill would be necessary. However, DM&E has proposed, as a means of minimizing the amount of cut required along the hillside below Skyline, to use retaining walls on the uphill side of the cut. This would allow DM&E to cross the slope of the hillside with less impact to the hillside and the community of Skyline. SEA determined that the potential cut and fill for Alternative M-2 could result in significant impacts to the topography in certain areas. However, appropriate use of retaining walls as described in DM&E's revised route description would reduce the severity of these impacts.

Changes in the local topography could affect the drainage of surface water in the project area. In areas where the rail bed would be elevated above the surrounding landscape, such as across the Blue Earth River flood plain, the rail bed could have a damming affect on surface drainage that would alter the flow of surface water. In locations where cuts are required that would place the rail bed below the level of the surrounding landscape, the rail bed could cause surface water to drain into the cut, altering the direction of surface water flow. This impact is discussed in more detail in the discussion on Water Resources.

Alternative M-3: Existing Rail Corridor Alternative

SEA described the potential impacts to the topography along Alternative M-3 in the Draft EIS. Reconstruction of the existing rail line and new construction within the existing rail corridor would not result in changes to the local topography.

7.4.3 GEOLOGY AND SOILS

This section discusses the potential impacts to geology and soils as a result of the Mankato alternatives.

Alternative M-1: No-Action

The No-Action Alternative would not require any construction activities, such as excavation or grading. No impacts to soils or the underlying geology along the existing line from construction or reconstruction activities would result from this alternative. No loss of prime farmland would result from this alternative.

Potential operational impacts to soils could occur in the event of a derailment or accidental fuel spill. Because the existing rail line would continue to operate at current traffic levels under Alternative M-1, the potential impact from potential spills and derailments would remain at the current level. As described in Chapter 3 of the Draft EIS, potential spills and derailments are very unlikely.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS described the soil types and characteristics for Blue Earth County. Soil types in the Alternative M-2 project area consist of silt loam, silty clay loam, and clay loam mixtures. Alternative M-2 would involve the construction of approximately 14.4 miles of new rail line within an approximate 200-foot right-of-way. Construction of this alternative would permanently convert approximately 349.1 acres of soil, of which approximately 170.0 acres are prime farmland to rail line right-of-way and would no longer be available for crop production.

Steep terrain and deep valleys along the western portion of the M-2 alignment would require cut and fill to maintain suitable grade. Based on information provided by Blue Earth County, to pass under U.S. Highway 169, a cut approximately 1,200 feet long and up to approximately 50 feet deep would be necessary. After crossing the Blue Earth River, construction of the rail bed would be on fill for approximately 3,300 feet and up to approximately 80 feet high. Leaving the Blue Earth River valley would require a cut, approximately 3,500 feet long and up to approximately 60 feet deep. Cuts made into hillsides in this area may be susceptible to slumping. This is evident in areas where hills were cut for the construction of County Highway 90. The slumping or sliding of cut hillsides would require construction of retaining walls or flattening of sideslips to ensure stability. Additional soil disturbance could cause increased erosion, which could result in an additional loss of soil. The movement of heavy

construction equipment in the right-of-way during construction would cause the soil in these areas to become compacted making it less productive. However, soil compaction would only present a problem for revegetation of the right-of-way because these soils would not be replanted with crops.

Chapter 3 of the Draft EIS described the potential impacts to soils from the operation of this alternative, including potential damage from derailment and accidental spills. These impacts include erosion of disturbed soils and soil contamination due to an accidental fuel or chemical spill. As described in the Draft EIS, a derailment or fuel spill would be unlikely with the construction of new rail line with newer equipment.

Development, implementation, and adherence to an approved erosion and sedimentation control plan and best management practices for the control of erosion and sedimentation would minimize erosion and soil loss. Such measures, set forth in SEA's recommended mitigation in Chapter 12, would include use of silt fences, storm water retention ponds, prompt reseeding and stabilization of disturbed areas, and watering of disturbed areas to prevent wind erosion. With the implementation of SEA's recommended mitigation, Alternative M-2 should not result in significant impacts to geology and soils.

Alternative M-3: Existing Rail Corridor Alternative

The Draft EIS described potential impacts to the soils and geology along Alternative M-3. Disturbance to soils from this alternative would be minimal due to the use of an existing rail corridor for the majority of the route. In areas of the alternative where reconstruction of the existing rail line and new rail line construction would be required, these impacts would be similar to those described for new construction. They would include soil mixing, erosion, compaction, and loss of productivity. However, overall ground disturbance from this alternative would be minimal due to approximately 10.1 miles of the route involving reconstruction of existing rail line, and approximately 5.8 miles of the alternative being new construction, of which the majority is located within existing rail corridor. This alternative would not result in conversion of any prime farmland. The potential types of impacts to geology and soils from rail operations would be similar to those described for Alternative M-2. As described above, a derailment or fuel spill would be unlikely with the construction of new rail line with new materials and modern equipment.

Development, implementation, and adherence to an approved erosion and sedimentation control plan and best management practices for the control of erosion and sedimentation would minimize erosion and soil loss. Such measures, set forth in Chapter 12, would include use of

straw bales and silt fences to control erosion, storm water retention ponds, prompt replanting of disturbed soils, watering of disturbed areas to prevent wind erosion, and limiting disturbance to only those areas that are necessary to construct the rail line. With the implementation of SEA's recommended mitigation, Alternative M-3 should not result in significant impacts to geology and soils.

7.4.4 PALEONTOLOGICAL RESOURCES

Chapter 3 of the Draft EIS described potential impacts to paleontological resources for each of the Mankato alternatives. As discussed in the Draft EIS, paleontological resources could occur throughout the Mankato project area, however, significant paleontological resources are rare in the geologic formation south of Mankato.

Alternative M-1: No-Action Alternative

Because this alternative would not involve any new construction or change in rail operations, SEA determined that there would be no significant impacts to paleontological resources.

Alternative M-2: Southern Route Alternative

SEA indicated in the Draft EIS that the possibility exists for discovering paleontological resources during the construction of Alternative M-2, particularly in areas where deep cuts into bedrock would be necessary. The discovery of significant paleontological resources, such as vertebrate fossils, is considered unlikely because paleontological resources in the geologic formations around Mankato are uncommon. Therefore, Alternative M-2 should not result in significant impacts to paleontological resources.

Alternative M-3

In the Draft EIS, SEA indicated that any paleontological resources present within the existing rail line right-of-way were likely disturbed or destroyed when the rail line was originally constructed. As only minimal construction would occur outside the existing right-of-way and disturbance would generally only occur to the ground surface, rehabilitation of the existing rail line and new construction within the existing rail corridor would not affect paleontological resources.

7.4.5 LAND USE

Land use types present in the project area and evaluated in this EIS include agricultural, residential, business and industrial, and public lands. SEA identified and measured land use on both sides of the rail line or within the right-of-way of the proposed rail line through site visits and the use of aerial photography. Land use on one side of the rail line may vary from that on the opposite side. Only the particular land use that is, or would be, directly adjacent to the rail line is evaluated in this section. Distances required to cross rivers, streams, lakes, and roadways were not included in the land use total. Therefore, the total length of land discussed under land use for each alternative may not add up to twice the length of the particular alternative.

7.4.5.1 Agriculture

Agricultural land is a broad definition and includes areas of land that are used for cultivation of crops or for pasture and hay.

Alternative M-1: No-Action Alternative

The existing portion of rail line through Mankato is adjacent to approximately 22.0 miles of agricultural land. Because Alternative M-1 would not involve any construction or change in rail operations, no loss of agricultural land would result from this alternative and the level of potential impact would remain the same.

Alternative M-2: Southern Route Alternative

The project area for Alternative M-2 is rural and much of the land use along the 14.4-mile route is agricultural. The primary use of the agricultural land in the M-2 project area is crop production. Corn, soybeans, and wheat are the principal crop plants grown. Construction of a new rail line with a 200-foot right-of-way would cross approximately 12.0 miles of agricultural land and require conversion of approximately 291.4 acres of land from agriculture to rail line right-of-way. This land that would be permanently converted to railroad right-of-way and would no longer be available for agricultural use.

Alternative M-2 would be adjacent to approximately 24.0 miles of agricultural land. This figure is based on the total amount of agricultural land exposed to the rail line from both sides of the right-of-way.

Crop fields along Alternative M-2 are generally rectangular or square in shape and 40 acres and larger in size. Farmers in this area use large equipment, often over 50 feet wide, to farm large fields. This type of equipment is not suitable for small crop fields. Crop fields less than five acres in size do not have enough room to maneuver large equipment and are therefore considered uneconomical to farm. According to comments from the Blue Earth County Highway Department, Alternative M-2 would potentially affect 42 farms. The proposed alternative would bisect numerous crop fields, potentially creating remnant fields of less than five acres that would no longer be economical for crop production.

In addition, crossing a rectangular field with a diagonal rail line would create fields of a triangular shape, creating "point rows." Much like small crop fields, point rows do not allow enough space to maneuver large farm equipment. To make the turn at the end of a row, the farmer would be required to leave a remnant piece of land unplanted, or maneuver the planting equipment back into the space which would double plant the area. Both of these techniques would reduce the farmer's farming efficiency.

As discussed in the Draft EIS, impacts to agricultural fields adjacent to the proposed right-of-way could also include soil compaction and mixing, damage to crops and fences, and erosion. However, these impacts would be minimal, limited only to those small isolated areas where construction activities would be necessary outside the rail line right-of-way.

Due to high water content in the soil, many of the crop fields in the project area use a subsurface drainage system to remove water from the soil. In many areas, subsurface drainage tiles are necessary to make the soil suitable to farm. Subsurface drainage consists of three to four inch lateral drain tiles buried under 3.5 to 4.5 feet of soil. These small tiles eventually either drain or are pumped into larger 12 to 15 inch main outlets or open ditches. Construction of a rail bed through areas with these drain tiles would require great care to prevent damage to the tiles. Coordination between DM&E and the local office of the Natural Resource Conservation Service (NRCS), as well as affected landowners, would be necessary to prevent damage to drain tiles and maintain field drainage.

The Draft EIS (Chapter 3) described the potential operational impacts to agricultural lands. They include restricted access to fields that have been transected by the rail line and safety issues related to the use of large farming equipment on public roads and grade crossings. The large size of some farm equipment, particularly planters and combines, would make transporting such equipment over public roadways hazardous for both farmers and other vehicles using these roadways.

Based on the evaluation in the Draft and Final EIS, SEA has determined that although these impacts to agricultural land could be significant for individual farmers, Alternative M-2 would not result in significant impacts to agricultural land in the context of the total agricultural land in the Mankato area.

Alternative M-3: Existing Rail Corridor Alternative

As described in Chapter 3 of the Draft EIS, the potential impacts to agricultural land for Alternative M-3 would be minimal because the construction activities for Alternative M-3 are primarily confined to existing rail rights-of-way. This alternative would not result in the conversion of any agricultural land to railroad right-of-way. Alternative M-3 would be adjacent to approximately 17.6 miles of agricultural land. As with other alternatives, minor impacts to adjacent agricultural land could occur during rail line construction. These impacts could include soil compaction and crop damage in locations where cropland has encroached on the rail line right-of-way or where construction activities would be required outside the right-of-way. Based on the evaluation in the Draft and Final EIS, Alternative M-3 should not result in significant impacts to agricultural land.

7.4.5.2 Residential

Residential land use is land that is used for human habitation. It contains farm dwellings, homes, neighborhoods, subdivisions, apartment complexes, and rural residences.

Alternative M-1: No-Action Alternative

There are approximately 325 residences located within 500 feet of Alternative M-1. As described in the Draft EIS, the impacts of existing rail operation to residential land along the existing rail line would not change due to this alternative. No additional residential land would be affected by Alternative M-1.

Alternative M-2: Southern Route Alternative

As described previously, the land use in the M-2 project area is primarily rural with residences dispersed throughout the project area. Based on aerial photography of the project area, 52 residences would be within 500 feet of the proposed rail line. Five of these homes would be within the proposed right-of-way and would require removal or relocation during construction

of Alternative M-2, because it is unlikely these homes could be avoided.³ This conversion of residential land containing and including existing homes would result in a significant impact to residential land.

During operation, Alternative M-2 would result in operational impacts to the communities of LeHillier and Skyline, rural neighborhoods south of Mankato and Eagle Lake, and residents of farmsteads and rural homes. These impacts include increased noise, transportation access delays, and safety concerns associated with operation of trains along the rail line and at highway/rail crossings. These issues are discussed in detail in later sections of this chapter.

Alternative M-3: Existing Rail Corridor Alternative

As discussed in Chapter 3 of the Draft EIS, approximately 1.8 miles of residential land was identified along Alternative M-3. There are approximately 325 residences located within 500 feet of Alternative M-3. No homes are located in the right-of-way of Alternative M-3, so no removal or relocation of homes would be required. Similar to Alternative M-2, residents along Alternative M-3 would experience impacts from increased rail operations above existing traffic levels in the rail corridor. The level of noise, dust (during construction), safety concerns, and traffic delays would likely increase as rail operations within the existing rail corridor increase.

7.4.5.3 Business and Industry

Business and industrial land use is land that is used primarily as an enterprise, where people come to work or purchase goods or services. Examples of business and industrial land would be industrial parks, shopping centers, business districts, and small strip malls.

Alternative M-1: No-Action

As discussed in Chapter 3 of the Draft EIS, Alternative M-3 would be adjacent to 6.5 miles of business and industrial land. Because Alternative M-1 would not involve any construction and rail traffic would remain at current levels, businesses along the existing rail corridor would continue to experience the same general level of impact from existing rail operations under Alternative M-1.

³ Blue Earth County submitted comments indicating that it believed 18 homes would require relocation due to construction of Alternative M-2. However, DM&E has indicated to SEA that relocation of homes could be minimized through the use of retaining walls that would minimize the amount of excavation necessary adjacent to Skyline.

Alternative M-2: Southern Route Alternative

Based on the rural, undeveloped nature of the Alternative M-2 project area, Alternative M-2 would affect a small number of businesses and industries. Zoning information provided by Blue Earth County, indicated approximately 9.0 acres of land zoned as light industrial property would be acquired for railroad right-of-way in LeHillier. This zoning would be compatible with use for a rail line. In addition, this proposed alternative would pass approximately 200 feet from the Hillcrest Health Care Center in LeHillier. Although the alternative would not cross the health center's property, the residents, and consequently, the business could be affected by the noise of passing trains. Section 7.4.9, Noise and Vibration, of this chapter discusses these impacts in more detail.

Mount Kato is a popular recreation area in southern Minnesota. Alternative M-2 would cross the southern property boundary of the Mount Kato Ski Area. Alternative M-2 would be close enough to the ski lifts on the south side of the area that ski area operations could be affected during construction of Alternative M-2. The center line for Alternative M-2 would be approximately 200 feet from the ski lift houses. Coordination between DM&E and Mount Kato staff during final project design and rail line construction and operation would be necessary to minimize the loss of ski area property and conflicts between the area and the rail line, and, most important, ensure the safety of skiers and other area users. The section below on Recreation discusses potential impacts to Mount Kato Ski area in more detail (See also SEA's recommended mitigation in Chapter 12).

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant impacts to businesses.

Alternative M-3: Existing Rail Corridor

As discussed in Chapter 3 of the Draft EIS, Alternative M-3 would be adjacent to 6.5 miles of business and industrial land. Approximately 1,200 feet of new rail line requiring approximately 5.5 acres of right-of-way would be constructed across the north end of a quarry near the regional wastewater treatment plant.

Temporary impacts such as increased noise, dust, traffic delays, reduced customer access, and safety concerns would be likely during the construction period. Businesses currently served by UP could experience a temporary reduction in service during periods of construction. Businesses along the existing rail line, such as the rock quarry, could benefit from the construction

of the new rail line if DM&E elected to purchase building materials, such as fill, gravel, or ballast from them for rail line construction.

Conditions would likely improve for affected businesses along Alternative M-3 following completion of construction activities. New track conditions could reduce operational conflicts between UP and DM&E which would improve service to existing and future UP and DM&E customers. The level of noise, safety concerns, and traffic delays, however, would likely increase as rail operations within the existing rail corridor increase. However, based on the evaluation in the Draft and Final EIS, Alternative M-3 should not result in significant impacts to businesses.

7.4.5.4 Public Services

Public services describe entities that provide a service to the general public, or specific population of the general public. Public services include police, fire, and ambulance service, schools, churches, and health care facilities such as doctors offices, clinics, hospitals, and care centers.

Alternative M-1: No-Action Alternative

Because Alternative M-1 would not involve any construction and rail traffic would remain at current levels, no additional impacts would occur to public facilities from this alternative.

Alternative M-2: Southern Route Alternative

As described in the Draft EIS, public services, such as emergency response units in the Alternative M-2 project area, could potentially experience delays at grade crossings created from the construction of the new rail line. Emergency units responding from Mankato to situations in rural Blue Earth County could have to cross the rail line which would create the potential for delay in response both during construction and operation. However, the randomness of emergency events and train operations, as well as the low traffic on many area roads and the low population densities along Alternative M-2, make it unlikely that delays to emergency vehicles would be more than an uncommon occurrence.

Likewise, motorists traveling to and from schools and churches in the area could be delayed at grade crossings. But, as discussed in more detail elsewhere in this Final EIS, such delays are expected to be minimal due to the low traffic on roads crossed by Alternative M-2.

One medical facility, the Hillcrest Health Care Center in LeHillier, Minnesota, is located along this alternative. The Hillcrest Health Care Center is on a bluff west of the community of LeHillier and is a residential care facility that includes a care unit for patients with special needs. One of the critical needs of these patients is a tranquil setting with minimal disturbance. The alignment for the proposed Alternative M-2 would be located approximately 200 feet from the Hillcrest Health Care Center property along the hillside below the facility. The facility could experience an increase in noise during construction and operation. The facility is currently exposed to traffic noise from U.S. Highway 169, also located within 200 feet of the care center. Noise generated during construction and operation would be similar to that produced by the highway and partially absorbed by the hillside adjacent to the rail line. The primary noise disturbance to the facility would be from train horn sounding at the crossing of County Highway 69. SEA's recommended mitigation in Chapter 12 includes noise mitigation for project-related wayside noise.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, including noise mitigation for the Hillcrest Healthcare Center, Alternative M-2 would not result in significant impacts to public services.

Alternative M-3: Existing Rail Corridor Alternative

SEA described the potential impacts to public services along the existing rail line in Mankato in Chapter 3 of the Draft EIS. As stated in the Draft EIS, the existing rail line passes within approximately 480 feet of the nearest church, approximately 1,500 feet of the nearest hospital, and approximately 1,000 feet of the nearest school. Potential construction impacts to these public facilities would include increased noise, vehicle delays, reduced access, and reduced safety.

During operation, new routes would need to be established for emergency vehicles to avoid closed or blocked roadways near the hospital. However, new grade separations at 3rd Avenue and Industrial Road, proposed by DM&E for Alternative M-3, would help facilitate access for emergency vehicles during train passing events.

With the improvements proposed by DM&E and SEA's recommended mitigation described in Chapter 12, SEA has determined that Alternative M-3 would not result in significant impacts to public services.

7.4.5.5 Public Lands

The following discusses SEA's additional analysis of the potential project impacts to public lands.

Alternative M-1: No-Action Alternative

SEA described the public lands along the existing rail line in Chapter 3 of the Draft EIS. Public lands adjacent to the existing rail line include Sibley Park, Land of Memories Park, Reconciliation Park, and the Minnesota River Trail. The Sakatah Singing Hills State Trail crosses the existing rail line near Lime Siding, east of Mankato. Public lands adjacent to the existing rail line would continue to experience the same level of impacts currently present due to existing DM&E and UP rail traffic.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS discussed the public lands along Alternative M-2 and the potential impacts from rail line construction and operation. In addition to the public lands mentioned in the Draft EIS, including the Red Jacket and South Route multi-use trails, the Indian Lake Conservation Area in southern Blue Earth County would also be adjacent to the proposed M-2 Alternative. Indian Lake Conservation Area is a wetland constructed as part of the mitigation for County Highway 90. The area provides habitat for wetland species as well as recreational opportunities for hikers. Impacts would include increased noise, safety concerns, and potential delays to persons accessing the area.

During operation, the increased speed and number of trains could cause trail and park users to experience some delays or reduced access due to passing trains. Increased noise, particularly from train whistles near grade crossings, also could detract from the desired recreational experience. Overall, impacts during operation would be greatest at locations where the trail crosses the rail line or for portions of parks immediately adjacent to the rail line. Recreational activities could experience temporary, significant disturbance during a passing train. However, overall, no long-term significant impacts would be expected.

Alternative M-3: Existing Rail Corridor Alternative

Chapter 3 of the Draft EIS, described the potential impacts to public lands along the existing rail line in Mankato. There is approximately 2.1 miles of public land adjacent to Alternative M-3 including the Minnesota River Trail, Sibley Park, Reconciliation Park, Land of

Memories Park, and the campgrounds at Sibley Park. Alternative M-3 would also cross the Sakatah Singing Hills Trail near Lime Siding.

During operation, the increased number of trains could cause trail and park users to experience some delays or reduced access due to passing trains. Increased noise, particularly from train whistles near grade crossings, could detract from the desired recreational experience. Overall, impacts during operation would be greatest at locations where the trail crosses the rail line and for those portions of the parks immediately adjacent to the rail line. Recreational activities could experience temporary, significant disturbance during a passing train. However, as with Alternative M-2, no long-term significant impacts would be expected.

7.4.6 WATER RESOURCES

This section discusses the existing water resources in the project area and the potential impacts that would occur as a result of construction and operation of these alternatives. Water resources addressed in this section include surface waters (such as lakes, ponds, rivers, and streams), groundwater, and wetlands. SEA has addressed and analyzed each water resource separately here. However, SEA recognizes that these resources are interrelated. Actions affecting one water resource could affect other categories of water resources.

7.4.6.1 Surface Water

Surface water resources include rivers, streams, lakes, and ponds. Potential impacts to these resources from each alternative are described below.

Alternative M-1: No-Action Alternative

The existing rail line, including both existing DM&E and UP rail lines, crosses 12 waterways, including the Blue Earth River and a branch of the LeSueur River. Because Alternative M-1 would not involve any construction and rail traffic would remain at current levels, no impacts other than those currently occurring to these surface water resources (such as from normal bridge and track maintenance activities) would result from Alternative M-1.

Alternative M-2: Southern Route Alternative

As discussed in Chapter 3 of the Draft EIS, Alternative M-2 would include new rail crossings of nine intermittent streams, and one perennial stream (the Blue Earth River). Because this alternative would require all new construction, and no crossing structures currently exist for

these waterways, construction of crossing approaches and abutments could require stream channelization, placement of fill or excavation of the stream bank, and bank stabilization at the crossing point. This additional ground disturbance would increase the potential for erosion and sedimentation into the stream.

During operation of Alternative M-2, the rail bed could alter drainage patterns for local waterways as described above. Additionally, operational impacts to surface water resources could occur in the unlikely event of a derailment that would result in fuels and other chemicals entering the surface water.

Commenters on the Draft EIS, particularly Blue Earth County, expressed concern that Alternative M-2 would alter surface water drainage, impede flood flows of the Blue Earth River, and damage or decrease the effectiveness of the Indian Creek Flood Control Diversion Canal. Additional discussion of each of these issues is provided below.

In the Draft EIS, SEA discussed the potential for surface water drainage to be altered, particularly related to potential impacts to wetlands. Surface water drainage could be changed by cuts through hills and fills across low areas. Cuts required for construction of Alternative M-2 could affect surface water drainage patterns by causing water to drain into the rail cut rather than flow overland and into the natural drainage ways. Fills across low areas could have a damming effect, as discussed in the Draft EIS. These alterations in drainage could have an impact on local waterways, ponds, and groundwater recharge by reducing surface water runoff to certain drainages while increasing the amount to others. However, because water would generally be channeled back into these local streams, only minimal impacts to surface runoff are anticipated.

Construction of the Alternative M-2 across the Blue Earth River and its flood plain could affect flood plain characteristics upstream of the crossing due to the potential damming effects of the rail bed. The rail bed and bridge structures would have to be designed to allow flood flows and high water to pass under or through the rail bed without significantly backing up water and thus altering upstream flood plain characteristics.

Additionally, surface water drainage from agriculture land could be affected if drainage structures for removing excess water from fields are damaged. Agricultural drainage systems and ditches would need to be protected and crossings designed to ensure proper functioning of these systems.

The construction of Alternative M-2 would cross and require placement of fill in the surface water holding pond for County Highway 90. This pond, located at the Saddle Club, south of Mankato, provides for the retention of water runoff from County Highway 90 and helps ensure the quality of water draining from the highway into local waterways. The pond would have to be replaced and drainage modified to ensure appropriate surface drainage into the new pond.

SEA also received comments regarding the potential impacts to impaired waters. SEA's analysis shows that Alternative M-2 would cross one such surface water, the Blue Earth River. This portion of the Blue Earth River is listed as impaired due to fecal coliform levels. As discussed in more detail elsewhere, construction of a rail line across a river would have no effect on fecal coliform levels. Thus, Alternative M-2 would have no impact on any impaired waters.

Last, SEA received comments that Alternative M-2 could affect the Indian Creek Flood Control Diversion Canal Project. The Indian Creek Project functions to reduce water flow in Indian Creek by diverting the water out of the creek and into a retention area along the Blue Earth River. When water flow in Indian Creek from runoff declines, the diverted water is slowly released back into the creek, preventing flooding of downstream areas of Mankato. In response to the comments, SEA requested information from DM&E as to how it intended to construct Alternative M-2 across this area. DM&E indicated that the rail bed and structures necessary for crossing the Indian Creek Project could be adequately designed to protect the functioning of the project. DM&E indicated that incorporation of several large culverts in the rail bed would allow passage of water from one side of the rail bed to the other and prevent significant changes to upstream flood levels (one foot or less). While DM&E indicated that it would volunteer to undertake such measures, SEA believes that, as part of the COE permit, mitigation measures would be imposed to adequately protect the Indian Creek Project and prevent increases to flood levels.

Based on the evaluation in the Draft EIS and additional analysis for the Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12 and the COE permit process, Alternative M-2 would not result in significant surface water impacts.

Alternative M-3: Existing Rail Corridor Alternative

Chapter 3 of the Draft EIS described the potential impacts to surface water from Alternative M-3. The existing rail corridor in which Alternative M-3 is proposed crosses 11 intermittent streams and 1 perennial stream (Blue Earth River). Construction impacts could include increased sedimentation in-streams at locations of reconstruction of stream crossings. These impacts would be temporary. Long-term impacts would include alterations to stream banks

that would be necessary for reconstruction of bridges and other stream crossing structures along the existing rail line. These impacts would be similar, although slightly less severe than the impacts for Alternative M-2 because the crossing structures for Alternative M-3 would be rehabilitated or expanded, rather than constructing a new stream crossing.

During operation, surface waters could be affected by accidental spills of fuels and other chemicals in the unlikely event of a derailment. However, because the amount of chemicals that DM&E transports is minimal, and improved rail conditions would likely reduce the occurrence of derailments, these type of surface water impacts would be unlikely.

None of the comments on the potential impacts on surface waters from Alternative M-3 required SEA to conduct additional analysis. However, SEA received numerous comments from the City of Mankato and its citizens concerned about the potential impacts the proposed additional rail traffic would have on the flood protection system along the Minnesota River in Mankato. SEA conducted additional analysis to determine if construction and operation of Alternative M-3 would have any impact on these flood control structures. Also in response to comments, SEA evaluated the potential for “soil liquefaction” — a process in which water-saturated soil will lose its cohesive properties and temporarily acts like a liquid — and vibration damage to these structures. The technical reports addressing these issues are included in Appendix M. As discussed there, SEA has determined that construction and operation of Alternative M-3 would have only an insignificant impact on the flood control structures and would be unlikely to cause damage or soil liquefaction. Section 7.2.8.2, Vibration, includes a more detailed discussion of SEA’s additional analysis regarding the flood control structures.

SEA also received comments regarding the potential impacts to impaired waters, as discussed previously. Alternative M-3 would cross one such surface water, the Blue Earth River. This portion of the Blue Earth River is listed as impaired due to fecal coliform levels. As discussed in Chapter 4, construction of a rail line across a river would have no effect on fecal coliform levels. Thus, Alternative M-3 would have no impact on any impaired waters.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA’s recommended mitigation and the COE permit process, Alternative M-3 would not result in significant surface water impacts.

7.4.6.2 Wetlands

Wetlands are a transition zone found between open water and upland systems. Wetlands are defined for regulatory purposes in the Clean Water Act. In administering the Clean Water Act, Section 404 permit program, the EPA and the COE define jurisdictional wetlands as follows:

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs and similar areas (40 CFR 230.3 and 33 CFR 328.3).

Wetlands associated with waters of the U.S. (streams, rivers, lakes) are regulated by the COE under the Clean Water Act. Isolated wetlands, according to a recent court ruling, Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001) are not under the jurisdiction of the COE. However, many of these wetlands fall within the permitting process of the State of Minnesota.

SEA estimated the wetland acreage for each Mankato alternative in this Final EIS using National Wetland Inventory (NWI) maps. Potential impacts to wetland areas in the project areas of the Mankato alternatives are described below.

Alternative M-1: No-Action Alternative

As reported in the Draft EIS, approximately 22.4 acres of emergent wetlands, and 1.1 acres of forested wetlands are present within the existing rail corridor. Because Alternative M-1 would not involve any construction or change in rail operations, no impacts would occur to these wetlands as a result of this alternative.

Alternative M-2: Southern Route Alternative

There would be approximately 13.8 total acres of wetlands within the right-of-way of Alternative M-2. Of this total, 9.2 acres are emergent wetlands and 4.6 acres are scrub/shrub wetlands. These wetlands would be converted to rail line right-of-way and therefore would likely be destroyed during construction. It is also possible, although unlikely, that additional acres of wetlands would be affected as a result of cut and fill activities altering surface drainage patterns.

In addition, Alternative M-2 would pass near the south boundary of the Indian Lake Conservation Area. The alternative would not cause a direct loss of wetlands, but it would cross and potentially require the rerouting of the only entrance into the area. Because this wetland area was created as mitigation for wetlands lost during construction of County Highway 90, care would need to be taken during rail line design and construction to ensure that these wetlands and the drainage that supports them are maintained and protected.

Potential impacts to wetlands during the construction of Alternative M-2 could be minimized by applying best management practices (BMPs) for erosion control in the rail line right-of-way and prohibiting construction equipment from operating in wetlands. Wetlands losses would also be mitigated as part of the COE Section 404 permit process, the Minnesota Protected Waters permit process, and the Minnesota Wetland Conservation Act wetland replacement review process, as discussed in Chapter 12 and recommended as mitigation should the proposed project be approved. Impacts to wetlands hydrology could be minimized when designing and installing right-of-way drainage structures to assure that they do not cause adjacent wetlands to drain. Compliance with handling and storage regulations for hazardous materials would minimize the potential impacts to wetlands from an accidental fuel or chemical spill during construction or operation. Rapid response and clean-up of accidental fuel or chemical spills in the unlikely event of a derailment would minimize contamination of soils which could lead to impacts on nearby wetlands.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12 and the COE permit process, Alternative M-2 would not result in significant impacts to wetlands.

Alternative M-3: Existing Rail Corridor Alternative

As discussed in the Draft EIS, approximately 22.4 acres of emergent wetlands, and 1.1 acres of forested wetlands are present within the existing rail corridor. SEA stated that construction activities for Alternative M-3 would convert most or all of these wetlands to rail line right-of-way.

During operation, impacts to wetlands could include disturbance to wetland wildlife during train passage and maintenance activities, and the potential contamination of wetlands in the unlikely event of an accidental fuel or chemical spill.

SEA received comments from the City of Mankato specifically noting the potential loss of 4.5 acres of wetlands adjacent to the existing UP rail yard north of Mankato. SEA has included these wetlands in the 22.4 acres of wetland impact estimated to result from this alternative.

Because much of the construction of this alternative would occur within the existing rail line right-of-way or adjacent to existing rail lines, it may be possible to avoid many wetlands. Prohibiting construction equipment from operating in wetlands and implementation of appropriate erosion or sedimentation control procedures would also minimize impacts to wetlands. Wetland losses would also be mitigated as part of the COE Section 404 permit process and the Minnesota Protected Waters permit process, as discussed in Chapter 12, and recommended as mitigation should the proposed project be approved.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12 and the COE permit process, Alternative M-3 would not result in significant impacts to wetlands.

7.4.6.3 Groundwater

Groundwater resources include those waters, over varying lengths of time, that have flowed into or have created spaces below the ground surface. They may be in a stationary state or continue to flow. Groundwater resources include springs, wells, and aquifers. Potential impacts to these resources are presented below.

Alternative M-1: No-Action Alternative

Because Alternative M-1 would not involve any construction or change in rail operations, no additional impacts to groundwater resources would occur.

Alternative M-2: Southern Route Alternative

SEA stated in the Draft EIS that Alternative M-2 would not involve any subsurface alterations that would potentially affect groundwater resources. However, SEA received comments indicating concern that some of the cuts along this alignment could encounter groundwater. Further consultations with DM&E and Blue Earth County engineers have confirmed that groundwater could be encountered, resulting in seeps or springs in areas of cuts through hillsides. Groundwater levels could be lowered or drained under these circumstances. However, these groundwater resources would represent very shallow aquifers, only a few feet below ground surface. These aquifers are generally not suitable for domestic use due to reduced

water quality or poor yields. Some sections of Alternative M-2 within the Blue Earth River valley would require deep cuts into bedrock. At these locations, during operation, in the unlikely event of a spill in one of these cuts, the risk of contamination to the groundwater in these aquifers would be increased due to the exposed bedrock.

As discussed in Section 7.4.5.1, Agricultural Land Use, much of the eastern alignment of Alternative M-2 is characterized by a high water table. It is the high water table that makes drainage systems in farm fields necessary to drain soils so they are suitable for crop production. However, once the M-2 Alternative would exit the Blue Earth River valley, the terrain is generally level. Cut activities would largely be confined to shallow cuts through small hills where it would be unlikely to encounter groundwater. In this area of the alignment, the rail grade would generally consist of a bed raised above the adjacent farm field, to provide sufficient drainage for the ballast and other rail structures.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant groundwater impacts.

Alternative M-3: Existing Rail Corridor Alternative

In Chapter 3 of the Draft EIS, SEA stated that subsurface alterations that could potentially affect groundwater resources would not be required for this alternative. However, impacts related to the accidental spill of fuel or chemicals could occur to groundwater during construction. Best management practices (BMPs) during construction and rapid response to any spills would reduce the likelihood and impact of a spill.

During operation of Alternative M-3, the risk also exists for contamination of groundwater due to accidental fuel or chemical spills. However, the small amount of hazardous material currently transported by DM&E and the improved condition of the rail line make it unlikely such an event would occur.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-3 would not result in significant groundwater impacts.

7.4.7 AIR QUALITY

SEA discussed in Chapter 3 of the Draft EIS that the potential for impacts to air quality would be similar for each of the Mankato alternatives. SEA calculated air quality impacts according to the methodology presented in Appendix E of the Draft EIS. SEA received no comments related to its air quality analysis for the Mankato alternatives that would call for additional analysis to be conducted. The following is a summary of the air quality analysis presented in the Draft EIS.

Alternative M-1: No-Action Alternative

Alternative M-1 would not result in the operation of construction equipment necessary for construction or reconstruction of either the DM&E or UP rail lines, beyond that necessary for maintenance. Additionally, no additional DM&E trains transporting coal would pass through Mankato. There would be no increase in air emissions from this alternative.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS describes the air quality impacts from Alternative M-2. Although the most recent alignment of Alternative M-2 differs slightly from that which was analyzed in the Draft EIS, the resulting air quality impacts would be very similar. Air quality impacts that could result from the construction of Alternative M-2 would include a temporary reduction in ambient air quality due to emissions from construction equipment and fugitive dust generated from the construction activities in the immediate vicinity of the rail line.

During operation, new grade crossings would be created. Air emissions from vehicles stopped at these grade crossings would contribute to the overall increase in air emissions related to this alternative. However, low traffic levels on these roadways combined with higher train speeds would limit the number of vehicles stopped at grade crossings along this alternative. Likewise, because Alternative M-2 is the shortest of the Mankato alternatives, approximately 14.4 miles long, locomotive emissions resulting from the operation of Alternative M-2 would be less than those of Alternative M-3, which is approximately 1.5 miles longer in length. A summary of emissions that could result from this alternative is found in Chapter 3 of the Draft EIS.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant air quality impacts.

Alternative M-3: Existing Rail Corridor Alternative

Chapter 3 of the Draft EIS, described the air quality impacts from Alternative M-3. Construction of this alternative could result in a temporary reduction in ambient air quality from construction vehicle emissions, and fugitive dust similar to what is described for Alternative M-2.

Operational impacts to air quality would be similar to what is described for Alternative M-2. Alternative M-3 is approximately 1.5 miles longer than Alternative M-2; therefore the amount of locomotive emissions resulting from the operation of Alternative M-3 would be greater than that of M-2. A summary of emissions that could result from this alternative is found in Chapter 3 of the Draft EIS.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-3 would not result in significant air quality impacts.

7.4.8 NOISE AND VIBRATION

In Chapter 3 of the Draft EIS, SEA determined that construction and operation of the Mankato alternatives would result in an increase in noise and vibration. Construction activities along the proposed alternatives would result in a temporary increase in noise levels. The increased level of rail traffic proposed for this project would result in increased noise during operation. Additionally, SEA discussed the potential for increased vibration due to heavier and faster trains. The following sections discuss in greater detail the potential impacts of the Mankato alternative to noise sensitive and vibration receptors.

7.4.8.1 Noise

SEA determined the number of noise sensitive receptors (e.g. homes, schools, churches, hospitals) potentially affected by train noise from the Mankato alternatives by calculating the distance (contour) from the rail line where the average daily noise level (L_{dn}) would be equal to 65 dBA and 70 dBA. SEA calculated these distances for existing levels of rail traffic and for the three levels of rail traffic SEA evaluated (20 million tons of coal annually, 50 million tons of coal annually, and 100 million tons of coal annually). SEA counted the number of noise sensitive receptors located within each noise contour for each alternative. The affected receptors are shown in Tables 7-1 through 7-3.

Alternative M-1: No-Action Alternative

No construction or reconstruction would occur with this alternative. Therefore, no construction related noise changes would occur as a result of this alternative. The number of noise sensitive receptors exposed to average daily noise levels of 65 dBA and 70 dBA (Table 7-1) would not increase.

Alternative M-2: Southern Route Alternative

The project area for Alternative M-2 is primarily rural. Currently, the main sources of noise in the project area are farming activities and traffic noise from rural roadways, including County Highway 90 and the light industrial area in LeHillier. People that live in the east end of the project area near Eagle Lake may experience train and whistle noise from nearby existing DM&E grade crossings. People that live in and around LeHillier may currently hear train and whistle noise from both DM&E and UP trains operating in the area.

Table 7-1 Alternative M-1 Number of Noise Sensitive Receptors - 65 dBA L_{dn} / 70 dBA L_{dn}				
Operation Level and Location	Wayside**	Wayside & Horn	Horn	Total
Existing Conditions - 10 trains*				
Blue Earth County	5/0	2/1	0/5	7/6
Eagle Lake	0/0	8/1	120/53	128/54
Mankato	0/0	36/11	645/222	681/233
Total	5/0	46/13	765/280	816/293
* Includes 7 Union Pacific trains and 3 DM&E trains ** "Wayside" includes those receptors within the noise contour affected only by locomotive engine and wheel noise. "Wayside & Horn" includes those receptors within the noise contour affected by both wayside and horn noise. "Horn" includes those receptors outside the wayside contour but within the horn contour.				

The level of noise in the Alternative M-2 project area would increase during the construction portion of the project due to operation of heavy construction equipment and other construction-related activities. This source of noise would cease following completion of the rail line (estimated to be two to three years). Following completion of project-related construction, noise increases from construction equipment would only be present intermittently during rail line maintenance.

Following completion of rail line construction, the sounds of rail line operations would contribute to the overall noise level of the project area. The number of noise sensitive receptors exposed to average daily noise levels of 65 dBA and 70 dBA during rail line operation along Alternative M-2 are presented in Table 7-2. Noise sensitive receptors would experience rail wayside noise (consisting of noise generated by the locomotive engines and rail/wheel interaction of locomotives and rail cars), whistle or horn noise (noise generated by the sounding of train horns at grade crossings for safety), or both. The number of noise sensitive receptors exposed to noise levels of 65 and 70 dBA L_{dn} or greater would increase as the level of rail traffic increases.

As shown in Table 7-2, Alternative M-2 would affect a substantial number of noise sensitive receptors, primarily located in the communities of Skyline and LeHillier. Additional rural residences located throughout Blue Earth County would also be exposed to increased levels of noise as a result of rail line operations. SEA has included recommendations in Chapter 12 for mitigation measures to reduce or minimize the potential noise impacts. Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant noise impacts.

Table 7-2 Alternative M-2 Number of Noise Sensitive Receptors - 65 dBA L_{dn} / 70 dBA L_{dn}			
Operation Level and Location	Wayside*	Wayside & Horn	Horn
Existing Conditions - 0 trains			
Blue Earth County	0/0	0/0	0/0
Skyline and LeHillier	0/0	0/0	0/0
Total	0/0	0/0	0/0
11 Trains per day			
Blue Earth County	9/4	8/3	27/14
Skyline and LeHillier	5/3	7/3	88/24
Total	14/7	15/6	115/38
21 Trains per day			
Blue Earth County	11/7	16/5	58/26
Skyline and LeHillier	11/4	16/4	158/71
Total	22/11	32/9	216/97

Table 7-2 Alternative M-2 Number of Noise Sensitive Receptors - 65 dBA L_{dn}/ 70 dBA L_{dn}			
Operation Level and Location	Wayside*	Wayside & Horn	Horn
37 Trains per day			
Blue Earth County	19/11	14/9	81/39
Skyline and LeHillier	23/5	25/5	201/95
Total	42/16	39/14	282/134
* “Wayside” includes those receptors within the noise contour affected only by locomotive engine and wheel noise. “Wayside & Horn” includes those receptors within the noise contour affected by both wayside and horn noise. “Horn” includes those receptors outside the wayside contour but within the horn contour.			

Alternative M-3: Existing Rail Corridor Alternative

SEA indicated in the Draft EIS that an increase in noise would occur during construction and operation along the existing rail line in Mankato, similar to that experienced along and described for Alternative M-2. The number of noise sensitive receptors that would be exposed to noise levels of 65 dBA and 70 dBA or greater is presented in Table 7-3.

Table 7-3 Alternative M-3 Number of Noise Sensitive Receptors - 65 dBA L_{dn}/70 dBA L_{dn}			
Operation Level* & Location	Wayside**	Wayside & Horn	Horn
Existing Conditions - 10 Trains/day			
Blue Earth County	5/0	2/1	0/5
Eagle Lake	0/0	8/1	120/53
Mankato/LeHillier	0/0	36/11	645/222
Total	5/0	46/13	765/280
18 Trains per day			
Blue Earth County	7/1	5/0	13/5
Eagle Lake	0/0	17/3	125/61
Mankato/LeHillier	0/0	79/31	902/415
Total	7/1	101/34	1,040/481

Table 7-3 Alternative M-3 Number of Noise Sensitive Receptors - 65 dBA L_{dn}/70 dBA L_{dn}			
Operation Level* & Location	Wayside**	Wayside & Horn	Horn
28 Trains per day			
Blue Earth County	7/5	7/1	19/7
Eagle Lake	0/0	33/7	222/104
Mankato/LeHillier	0/0	130/38	1,343/478
Total	7/5	170/46	1,584/589
44 Trains per day			
Blue Earth County	7/7	8/2	28/14
Eagle Lake	0/0	49/18	312/152
Mankato/LeHillier	0/0	208/78	1,895/799
Total	7/7	265/98	2,235/965
* Includes 11, 21, and 37 DM&E trains and 7 existing Union Pacific trains operating along the existing corridor. ** "Wayside" includes those receptors within the noise contour affected only by locomotive engine and wheel noise. "Wayside & Horn" includes those receptors within the noise contour affected by both wayside and horn noise. "Horn" includes those receptors outside the wayside contour but within the horn contour.			

As the tables show, Alternative M-3 would have substantially greater impacts to noise sensitive receptors than Alternative M-2. SEA has included recommendations in Chapter 12 for mitigation intended to minimize impacts to noise sensitive receptors in the event that UP permits DM&E to construct a rail line on its right-of-way and the Board approves Alternative M-3. Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-3 would not result in significant noise impacts.

7.4.8.2 Vibration

Several factors determine the amount of ground vibration caused by a passing train. These factors include the speed, weight, and length of the train, the condition of the rail line, and the specific type of soil surrounding the rail bed. The magnitude of ground vibration would not be increased due to increased train frequency. However, it could be increased due to heavier, faster, and longer trains. As discussed in the Draft EIS, structures along the existing DM&E rail line alternatives would experience varying degrees of vibration and different levels of impact.

In the Draft EIS, SEA determined that project-related ground vibration could be sufficient to cause structural damage to structures within 100 feet of the rail line. After SEA received a number of comments expressing concern for vibration damage to homes, SEA conducted actual field investigations in Mankato to obtain additional information. Based on this field analysis and modeling of potential train vibration, SEA determined that structures would likely need to be within 50 feet of the rail line to be potentially damaged by rail vibration. Structures 50 feet and beyond would not be expected to experience any damage. However, ground vibration would likely be of sufficient magnitude to cause disturbances (such as rattling windows) to structures, particularly residences, up to 400 feet from the rail line.

Ground vibration is not expected to be a concern to structures beyond 400 feet. However, even low levels of ground vibration have the potential to affect sensitive medical equipment such as MRI equipment beyond 400 feet from the rail line.

Alternative M-1: No-Action Alternative

In the Draft EIS, SEA identified 14 houses within 100 feet of the existing rail line, 63 between 101 and 200 feet, and 159 houses between 201 and 400 feet. No houses are located within 50 feet of the rail line. The level of ground vibration experienced by these structures would not increase due to this alternative.

Alternative M-2: Southern Route Alternative

Current sources of vibration along Alternative M-2 are similar to the existing sources of noise and include traffic from local roadways and seasonal farming activities. SEA's analysis of Alternative M-2 in the Draft EIS determined that there would be 4 structures within 100 feet, 9 structures between 101 and 200 feet (this includes the Hillcrest Health Care Center), and 24 structures between 201 and 400 feet of the proposed rail line. No structures would be located within 50 feet of the rail line. A total of 37 structures would be within 400 feet of the proposed rail line, and would likely experience some minimal increases in vibration during the construction phase of the project.

The level of vibration created during construction activities would vary depending on the amount of heavy earthwork and excavation required to create a suitable grade for the rail bed. Construction in areas such as Skyline and LeHillier would likely create higher levels of vibration due to the large amounts of earthwork required in these areas to create a suitable rail grade. Impacts to houses from vibration would be similar to those described previously. Houses nearest the rail line would be expected to notice vibrations more than those further from the track.

During operation of Alternative M-2, structures along the rail line would be expected to experience some disturbance and inconvenience due to vibration created by passing trains. As noted previously, 37 structures would be within 400 feet of the proposed rail line, and no structures would be within 50 feet. SEA's vibration testing, as discussed previously and in detail in Appendix M, indicated structures would likely have to be 50 feet or less from the right-of-way for vibration levels to be sufficient to cause structural damage. However, because DM&E would acquire an approximately 200-foot right-of-way, no structures would be located within 100 feet of the rail line. Therefore, although several structures may experience vibration from passing trains, none are expected to be damaged as a result of project-related train operations.

No hospitals containing sensitive medical equipment such as scanning electron microscopes, analytical scales, and MRI equipment are found along Alternative M-2. However, the Hillcrest Health Care Center, a residential health care facility, is located approximately 200 feet from the proposed alignment of Alternative M-2. Hillcrest does not use the types of sensitive medical equipment mentioned above. However, it is equipped to care for over 100 patients with special needs and its patients do require specialized medical equipment for administering medications and treatments. However, this equipment would not be significantly affected by the vibration anticipated to result from operation of Alternative M-2.

Alternative M-3: Existing Rail Corridor Alternative

Chapter 3 of the Draft EIS, described the results of SEA's vibration analysis for Alternative M-3. There are 14 structures located within 100 feet, 63 structures between 101 and 200 feet, and 159 structures between 201 and 400 feet of the proposed rail line. No structures are located within 50 feet of the rail line. As discussed previously, structures would need to be within 50 of the rail line to be exposed to levels of vibration potentially significant enough to cause structural damage. Therefore, increases in project-related vibration due to operation of Alternative M-3 are not expected to cause any damage to adjacent structures.

As discussed in the Draft EIS, LeHillier and Mankato are protected from flooding of the Minnesota River by a system of earthen levees and a concrete flood wall. These flood control structures were constructed by the COE and are now the responsibility of the communities. The existing UP rail line currently runs along the Minnesota River, adjacent to these structures. Under Alternative M-3, DM&E would construct an additional rail line between the existing UP rail line and the flood wall. Additionally, DM&E would operate heavier and faster trains through Mankato. Thus, not only would Alternative M-3 be closer to the flood wall, but it would potentially result in increased levels of vibrations.

SEA noted in the Draft EIS that it appeared that Alternative M-3 could, as a result of increased vibration, cause damage to these flood control structures. Such damage, SEA stated, could result in a failure of the flood wall, causing flooding and associated damage and danger to human safety in Mankato and LeHillier. Consultation with the COE indicated that engineering solutions could protect the flood control projects, even with increased rail operations. However, at the time of the Draft EIS issuance, access to the existing UP corridor was limited and information needed to determine the nature and extent of potential impacts and any solutions to prevent them was not available. SEA acknowledged that more information was needed to determine the level of impact Alternative M-3 would have on these flood control structures.

SEA also received numerous comments from the City of Mankato and citizens, expressing concern for the safety of the flood control projects under the increased rail operations contemplated as part of the PRB Expansion Project. Other commenters, particularly from the community of Skyline and Blue Earth County, raised concerns about the potential impacts of Alternative M-2. Because it is generally preferable to use existing rights-of-way for construction of linear projects and due to the potentially significant impacts associated with Alternative M-2, SEA decided to try to conduct vibration testing along the existing UP rail line.

SEA consulted with the City of Mankato and determined that areas were available along the UP corridor where Mankato either had access or owned the property and UP had an easement from the City. Through coordination with the City, SEA conducted a site visit to those areas along the right-of-way where access was available. SEA determined the acceptable locations for vibration analysis along the existing UP rail line, and conducted detailed testing of the potential levels of vibration which could result from Alternative M-3.

SEA also conducted a detailed vibration analysis at the flood wall in downtown Mankato. A report of the testing is included in Appendix M. The purpose of the vibration study was to determine if vibration levels from passing trains would be of sufficient strength to cause structural damage to the flood wall, as well as determine the effects of existing train operations on the flood wall. SEA's vibration study took into account that DM&E has proposed to locate the new rail line between the existing UP rail line and the flood wall, and has proposed to operate loaded unit coal trains along the new line through Mankato at speeds up to 45 miles per hour. SEA conducted this vibration study directly adjacent to the Mankato depot during the passing of a UP train. Data collected during the testing was used to determine the potential magnitude of vibration under the proposed levels of operation of Alternative M-3. Based on this data, SEA determined that the level of vibration generated from a loaded unit coal train passing at approximately 18 feet from the flood wall at 45 miles per hour would not be sufficient to cause structural damage to the flood wall (see Appendix M).

In addition, SEA received comments concerned that under high-water and flood conditions, vibration created by passing trains could result in soil liquefaction. Soil liquefaction occurs when a vibration event to saturated soil causes the normally stable soil to temporarily assume the consistency of a thick liquid, resulting in loss of soil structure and stability. Commenters indicated that should liquefaction occur, it could result in failure of flood control structures. SEA had not evaluated in the Draft EIS the potential for soil liquefaction to occur. SEA conducted additional analysis of the level of rail vibration and soil characteristics along the flood wall to evaluate the potential for liquefaction to occur in preparing this Final EIS.

To do so, SEA obtained geotechnical information for the soils along the Mankato flood wall from the City of Mankato. SEA determined that the amount of energy, or the magnitude of a vibration event at the flood wall that would be necessary for liquefaction to occur would be equivalent to an earthquake of 5.0 on the Richter scale. This is equivalent to the energy released by detonation of 32,000 pounds of dynamite. Based on SEA's vibration analysis, it was determined that a passing train would generate the energy equivalent to less than 1 pound of dynamite. Therefore, SEA determined that vibration from passing trains would be insufficient to cause soil liquefaction.

Therefore, based on the available information, including SEA's additional analysis of vibration and potential soil liquefaction along the Mankato flood wall, SEA has concluded that operation of Alternative M-3 would not result in any adverse impacts to flood control and that Alternative M-3 would not result in significant vibration impacts.

7.4.9 BIOLOGICAL RESOURCES

This section describes the existing biological resources along the Mankato alternatives and the potential impacts to these resources. Biological resources include vegetation, wildlife, aquatic resources and fisheries, and threatened and endangered species.

7.4.9.1 Vegetation

SEA identified vegetation communities along the alternatives using aerial photography and site visits. SEA determined that significant impacts would occur if the vegetation community lost consisted of native prairie and forest, was of high value to wildlife, or more abundant in the rail line right-of-way than in the surrounding area. The method of analysis used to determine vegetative communities is found in Chapter 3 of the Draft EIS.

Alternative M-1: No-Action Alternative

As reported in the Draft EIS, Alternative M-1 would have no impact on vegetation other than what would occur as part of normal rail line maintenance.

Alternative M-2: Southern Route Alternative

As discussed previously, the Alternative M-2 project area is largely rural. In the eastern portion of the project area, the dominant vegetation community is cropland. Crop fields are separated by grassy ditches, wooded drainages and draws, wood lots, and wetlands. The western portion of the M-2 project area contains steep wooded hills, and grassy valleys, as well as crop fields, and wooded riparian areas.

Construction of Alternative M-2 would convert approximately 349.1 acres of land to rail line right-of-way including approximately 9.4 miles (227.5 acres) of crop land and approximately 2.6 miles (65.3 acres) of woody vegetation. Vegetation within the right-of-way would be removed during construction and reestablished following construction. However, woodlands and cropland within the rail line right-of-way would be converted to grassy areas adjacent to the rail line. Vegetation clearing and disturbance to soils during construction, as well as the revegetation of the right-of-way would create opportunities for the introduction of non-native and undesirable plant species. Over time, narrow strips of woody vegetation would likely become established along parts of the right-of-way, consisting primarily of scrub/shrub vegetation.

Alternative M-2 would be adjacent to 18.8 miles of cropland and 5.2 miles of woodland. Impacts to vegetation from the operation of Alternative M-2 would be similar to those previously described in the Draft EIS. These would include loss of desirable plant species from the use of herbicides in the right-of-way, trimming and mowing of vegetation within the right-of-way, and damage to vegetation in the event of an accident or derailment. Trimming of trees and brush within the right-of-way would be required to maintain a clear rail bed and an unobstructed view.

Construction of Alternative M-2 could result in the loss of vegetation communities. However, SEA determined that no significant impacts would occur because the vegetation community lost does not consist of native prairie and forest, is not of high value to wildlife, and is not more abundant in the rail line right-of-way than in the surrounding area. Confinement of construction to the rail line right-of-way would prevent disturbance to vegetation outside the right-of-way. Mitigation measures recommended in Chapter 12 could be implemented to minimize potential project impacts outside of the project right-of-way.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant vegetation impacts.

Alternative M-3: Existing Rail Corridor

As reported in the Draft EIS, Alternative M-3 would be adjacent to approximately 1.5 miles of pasture, 5.0 miles of woody vegetation, and 24.7 miles of cropland. This would include approximately 22.4 acres of emergent wetlands and 1.1 acres of forested wetlands located within the existing right-of-way.

The majority of Alternative M-3 would be constructed within existing rail line right-of-way and would involve minimal new construction. Approximately 16.0 acres of new land along Alternative M-3 would be converted to rail line right-of-way. This would primarily include the portion of Alternative M-3 that would depart from the existing UP right-of-way to cross an existing quarry and then rejoin the existing rail corridor adjacent to the Minnesota River. Vegetation communities that would be lost due to the conversion of this approximately 16.0 acres of land would include approximately 2.5 acres of woodland and approximately 4.5 acres of grassy vegetation. The remaining 9.0 acres is primarily industrial land. However, it may not always be necessary to disturb the entire right-of-way, reducing the actual loss of vegetation.

Portions of the 5.8 miles of new construction could require clearing of vegetation that has encroached on the existing UP right-of-way. Additionally, Alternative M-3 could require vegetation clearing where the alignment would be adjacent to the east end of the UP rail yard north of Mankato, as part of new rail bed construction. Because of the majority of Alternative M-3 being constructed within or directly adjacent to existing rail line right-of-way, the potential impacts to adjacent vegetation would be minimal. SEA determined that no significant impacts would occur because the vegetation community lost does not consist of native prairie and forest, is not of high value to wildlife, and is not more abundant in the rail line right-of-way than in the surrounding area.

Operational impacts to vegetation communities along Alternative M-3 would include damage resulting from rail line maintenance activities such as the use of herbicides and brush clearing, and damage in the unlikely event of a serious derailment. As with Alternative M-2, the mitigation measures recommended in Chapter 12 would minimize project impacts to vegetation.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-3 would not result in significant impacts to vegetation.

7.4.9.2 Wildlife

This section describes the potential impacts to wildlife species anticipated to occur due to each of the Mankato alternatives.

Alternative M-1: No-Action Alternative

As reported in the Draft EIS, because no new construction would occur, and DM&E's operational level would not increase, impacts to wildlife that inhabit the existing rail line right-of-way would remain the same under Alternative M-1.

Alternative M-2: Southern Route Alternative

As discussed in Chapter 3 of the Draft EIS, wildlife that inhabit the Alternative M-2 project area would experience a loss of habitat during construction. Habitat lost would include 227.5 acres of cropland, 65.3 acres of woody vegetation, and 13.8 acres of wetlands. Wetland areas represent high quality wildlife habitat in the project area. Mobile species such as birds and large mammals would likely leave the area of construction for suitable habitat nearby. Other less mobile species such as reptiles, amphibians, and small mammals would likely be lost during construction. Construction of a rail line would likely create small fragments of habitat with less value to wildlife than larger areas of the same habitat type. During operation, impacts to wildlife would include noise disturbance and increased mortality from being struck by passing trains. However, based on the evaluation in the Draft and Final EIS, SEA has determined that Alternative M-2 would not result in significant impacts to wildlife.

Alternative M-3: Existing Rail Corridor Alternative

As described in Chapter 3 of the Draft EIS, Alternative M-3 uses an existing rail corridor. Wildlife that live within or use the existing corridor would experience temporary impacts during construction activities such as increased noise and habitat loss, similar to what is described for reconstruction of DM&E's existing rail line. Wildlife within the right-of-way would likely be displaced during construction activities. Increased mortality to some small, less mobile species such as mice, voles, amphibians, and reptiles could also occur.

During operation, increased train speeds and frequency would likely lead to increased mortality and noise disturbance to wildlife near the right-of-way. However, the developed nature of this operating rail corridor already subjects wildlife to these impacts. Additionally, the types and amount of wildlife present within the existing corridor primarily is limited to wildlife able to adapt to developed areas. This wildlife has adjusted to train activity and would likely adjust to an

increase of such activity. Therefore, SEA has determined that Alternative M-3 would not result in significant impacts to wildlife.

7.4.9.3 Aquatic Resources and Fisheries

Aquatic resources and fisheries include fish and other animals that inhabit the streams, ponds, and waterways in the project area. This section describes the potential impacts to these resources from the construction and operation of the Mankato alternatives.

Alternative M-1: No-Action Alternative

The existing rail corridor through Mankato, including both DM&E and UP rail lines, crosses 12 streams, including the Blue Earth River. Because no new construction would occur, Alternative M-1 would not create any new impacts to aquatic resources and fisheries in these waterways.

Alternative M-2: Southern Route Alternative

Alternative M-2 would cross one perennial stream, the Blue Earth River, and nine intermittent streams. Alternative M-2 would not cross any streams designated as trout streams by the State of Minnesota, based on the water quality of the stream and its watershed. Impacts to aquatic resources would primarily result from construction of a stream crossing of the Blue Earth River near LeHillier, and fill activities along the Blue Earth River along the river sideslope west of Skyline. Aquatic organisms that inhabit the Blue Earth River could be affected by increased total suspended solids (TSS) and sedimentation during construction. These impacts include unsuccessful development of fish eggs, clogged and abraded gills, altered habitat, and modification of natural up- and down-stream movements of fish. These impacts would be temporary, limited to the short period of water-crossing construction and restoration of the stream bank.

The daily operation of Alternative M-2 would create the opportunity for an accidental spill which could introduce fuel or other hazardous chemicals into surface water. These contaminants, if present at sufficient levels, could degrade local water quality and result in mortality to fish and other aquatic life. However, it is unlikely that any spill would result in release of quantities of fuel or other hazardous materials sufficient to cause a significant reduction in water quality.

Several permits, including the Clean Water Act, Section 404 and 401 and NPDES permits (Section 402) designed to protect water quality and water resources would be required as part of construction of Alternative M-2. The processes for obtaining these permits should adequately

protect aquatic resources crossed by Alternative M-2. SEA has included mitigation recommendations in Chapter 12 that would require DM&E to obtain these permits as part of any project approval, as well as other recommendations, to protect water quality. Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-2 would not result in significant impacts to aquatic resources.

Alternative M-3: Existing Rail Corridor Alternative

Alternative M-3 would cross 1 perennial stream (the Blue Earth River), and 11 intermittent streams. All of these crossings would involve reconstruction of existing rail line structures. As with Alternative M-2, Alternative M-3 would not cross any designated trout streams. Chapter 3 of the Draft EIS described the potential impacts to the aquatic organisms that inhabit affected streams. These impacts would generally include increases in sedimentation due to stream bank disturbance, in-stream work, and bank stabilization activities. However, because these structures would be reconstructed as opposed to newly-constructed, construction activities would likely involve less disturbance to the stream bank and limited, if any stream channelization.

The daily operation of Alternative M-3 would create the opportunity for an accidental spill introducing fuel or other hazardous chemicals into surface water. These contaminants, if present at sufficient levels, could degrade local water quality and result in mortality to fish and other aquatic life. However, it is not likely that a spill would result in release of quantities of fuel or other hazardous materials sufficient to cause a significant reduction in water quality.

As noted for Alternative M-2, construction and reconstruction activities necessary for Alternative M-3 would require several permits, including the Clean Water Act, Section 404 and 401 and NPDES permits. SEA has included mitigation recommendations in Chapter 12 that would require DM&E to obtain these permits as part of any project approval, as well as other recommendations, to protect water quality. Based on the evaluation in the Draft and Final EIS, SEA has determined that, with SEA's recommended mitigation in Chapter 12, Alternative M-3 would not result in significant impacts to aquatic resources.

7.4.9.4 Threatened and Endangered Species

In preparing the Draft EIS, SEA contacted the USFWS for information on the Federally listed threatened and endangered species potentially occurring and affected by the proposed project. Species identified by USFWS included Topeka shiner, Minnesota dwarf trout lily, Higgin's eye pearly mussel, winged mapleleaf mussel, Karner blue butterfly, prairie bush-clover, Leedy's roseroot, western prairie fringed orchid, and bald eagle. SEA conducted a detailed

evaluation of the potential impacts of the project to these species in Minnesota, as discussed in the Draft EIS, Chapter 3 and in the biological assessment (Appendix K of the Draft EIS and Appendix H of the Final EIS). SEA determined that no impacts to threatened and endangered species are expected to occur as a result of the selection of any of the proposed Mankato alternatives.

USFWS submitted comments on the potential impacts to Federally listed threatened and endangered species. USFWS indicated that the overall PRB Expansion Project could affect some Federally listed threatened and endangered species, but not in Minnesota.

SEA also received comments suggesting that SEA should have discussed in more detail state listed threatened and endangered species. As discussed elsewhere, however, the Endangered Species Act provides protection to Federally listed species identified as endangered (*i.e.*, in danger of becoming extinct throughout all or a significant portion of the species range) or threatened (*i.e.*, in danger of becoming endangered throughout all or a significant portion of the species range). Although numerous states have regulations or policies to categorize and protect uncommon species found within the particular state, in most cases, state listed species do not meet the definition of Federally endangered or threatened species. Thus, they are not protected under the Endangered Species Act, and SEA is not required to consider them as part of this EIS process.

7.4.10 TRANSPORTATION

SEA discussed the potential impacts to the movement of automobiles and trucks that would result from construction or reconstruction of the Mankato alternatives in the Draft EIS. These potential impacts could include traffic delays, detours, and inconvenience for pedestrians and motorists crossing the rail line.

In addition, as stated in the Draft EIS, SEA conducted a detailed analysis to determine the potential delays to vehicles during rail line operation. SEA calculated potential changes in vehicle delay for crossings with average daily traffic (ADT) volumes of 5,000 vehicles per day or greater. SEA concluded that the potential effect of increased train traffic for highways with ADT volumes below 5,000 would be experienced by very few drivers and the additional vehicular delay would be minimal. SEA analyzed the crossings for three proposed levels of operation; 20 million tons annually, 50 million tons annually, and 100 million tons annually, and two train lengths; 6,400 feet (115 cars) and 7,400 (135 cars). SEA categorized crossings based on the level of service. Levels of service ranging from free-flowing (A) to severely congested (F) are listed in Table 7-4.

Table 7-4 Grade Crossing Level of Service	
Level of Service	Average Total Delay (sec/vehicle)
A	≤ 5 (free flowing)
B	>5 and ≤ 10
C	>10 and ≤ 20
D	>20 and ≤ 30
E	>30 and ≤ 45
F	>45 (severely congested)

Each of the Mankato alternatives would have different impacts to rail transportation, as the following shows.

Alternative M-1: No-Action Alternative

Alternative M-1 includes 20 grade crossings. Under Alternative M-1, no changes in the existing vehicular transportation delays would occur. Rail traffic would remain at the present level, as would train speeds. Operational conflicts between DM&E and UP would continue.

Alternative M-2: Southern Route Alternative

Alternative M-2 would cross 17 roadways, including 2 roadways with an ADT over 5,000. During project-related construction, all 17 roadways would experience some degree of impact including delays at crossings, reduced access, and detours. However, DM&E has indicated that project-related construction activities at grade crossings could likely be accomplished in hours or a few days. Emergency routes could be established during construction to avoid or minimize delay of emergency vehicles at grade crossings. Additionally, the crossing would only be blocked while work is in progress. Temporary lane closures or detours generally would be similar to those currently required for routine rail line maintenance. At some locations where Alternative M-2 would cross roadways, such as Township Road (TWP) 190 or Indian Lake Road, temporary road closures could be necessary.

Construction of Alternative M-2 would require modifications to pedestrian routes such as the Red Jacket and South Route Trails. Portions of these trails are located along the same alignment as the proposed rail line and would need to be relocated.

As part of the construction of Alternative M-2, DM&E proposed grade separated crossings for County Highway 16, State Highway 66, and U.S. Highway 169. One of these roadways, U.S. Highway 169, has an ADT above 5,000 vehicles per day. In the Draft EIS, SEA evaluated this crossing as a highway/rail grade crossing and determined the potential vehicle delay that would result at this crossing. As a grade separated crossing, however, no delays to motorists would occur at this crossing. SEA also has analyzed the potential vehicle delays that would result at the single grade crossing, State Highway 22, crossed by Alternative M-2 that has ADT above 5,000 vehicles per day. SEA evaluated the potential vehicle delay at three levels of rail traffic (20, 50, and 100 MNT) and two train length scenarios (115 and 135 rail cars).

SEA determined that the level of service for State Highway 22 at the 20 million tons annually level of rail operations would be level A for both train length scenarios. Under the 50 million tons annual level of rail operations, State Highway 22 would experience a level of service of A for 6,400-foot trains and level B for 7,400-foot trains. Finally, under the 100 million tons annual level of rail line operations, State Highway 22 would experience a service level of B for the 6,400-foot train scenario and level C for 7,400-foot trains.

SEA also evaluated the potential of Alternative M-2 to cause delays to emergency vehicles responding to rural Blue Earth County from Mankato. SEA determined emergency responders could experience delays at new grade crossings in the event that it arrived at a grade crossing at the same time a train was passing. However, the randomness of emergency events and train operations, the low traffic volume on many of the roads along Alternative M-2, the low population density along Alternative M-2, and the proposed grade separations make it unlikely that delays of an emergency vehicle would be more than an infrequent occurrence.

Furthermore, SEA notes that Alternative M-2 would provide DM&E a direct connection between its existing rail lines on the east and west sides of Mankato. This direct connection would eliminate many of the operational conflicts between UP and DM&E and result in more efficient operations for both rail carriers.

Based on all the available information, SEA has determined that Alternative M-2 would not result in significant transportation impacts.

Alternative M-3: Existing Rail Corridor Alternative

Alternative M-3 would have 20 grade crossings. All of these crossings would be at or adjacent to existing grade crossings along the existing UP or DM&E rail lines. During project-related construction and reconstruction, all 20 roadways would experience some degree of impact including delays at crossings, reduced access, and detours. However, DM&E has indicated that project-related construction and reconstruction activities at grade crossings could likely be accomplished in hours or a few days. Additionally, a crossing would only be blocked while work is in progress. Temporary lane closures or detours would be similar to those currently required for routine rail line maintenance.

During operation, impacts to transportation would include delays to vehicles at grade crossings. Alternative M-3 would not have any crossings with ADT volumes of 5,000 or greater. Therefore, SEA did not calculate the potential delays to motorists at any of the 20 roadways crossed by the existing rail line.

SEA also evaluated Alternative M-3 for its potential to cause delays to emergency vehicles responding to calls throughout Mankato. SEA determined emergency responders could, due to the greater number of trains operating along the existing rail line, experience delays at grade crossings in the event that they arrived at a grade crossing at the same time a train was passing. However, the randomness of emergency events and the low population on the side of the existing rail line opposite the main streets of Mankato make it unlikely that delays of an emergency vehicle would be more than an infrequent occurrence.

Although Alternative M-3 would be located largely within the existing UP rail corridor, it would provide DM&E a direct connection between its existing rail lines on the east and west sides of Mankato. This direct connection would eliminate many of the operational conflicts between UP and DM&E and result in more efficient operations for both rail carriers.

Based on all the available information, SEA has determined that Alternative M-3 would not result in significant impacts to transportation.

7.4.11 SAFETY

As discussed in Chapter 3 of the Draft EIS, rail line construction and increased rail operations in the Mankato area could affect the safety of roadway users at grade crossings, including school buses. A list of school bus crossings that could be affected by the Mankato Alternatives is presented in Chapter 3 of the Draft EIS.

Alternative M-1: No-Action Alternative

There are 20 grade crossings along Alternative M-1, 15 which are crossed by school buses. Chapter 3 of the Draft EIS, presented a list of all roadways along Alternative M-1 that are crossed by school buses, and the number of times per day each is crossed. Crossing warning devices at these crossings include gates at five crossings, flashing lights at seven crossings, and passive warning (crossbucks) at eight crossings. Safety issues related to construction and increased rail operation would not occur as a result of this alternative, but the safety issues associated with the existing rail line would continue to exist, and likely increase as the rail line continues to age.

Alternative M-2: Mankato South Route

Construction of Alternative M-2 would create 14 new grade crossings,⁴ all of which would be crossed by school buses. DM&E has proposed , under its state based agreement plan, gates at three of these new crossings, flashing lights at four, and passive warning devices for the remaining seven crossings, as shown in Chapter 12. Additionally, DM&E's proposed plan for Alternative M-2 potentially calls for three grade-separated crossings, including County Highway 16, State Highway 66, and US Highway 169.

The potential safety impacts at these new grade crossings during construction could include delayed drivers attempting unsafe crossings and increased traffic on ancillary roadways due to temporary detours or motorists attempting to avoid construction areas. Additionally, motorists would need to be alert when they encounter construction of grade crossings at locations where grade crossings do not currently exist. Construction of a new grade crossing would likely take longer than the reconstruction of an existing grade crossing, increasing the time motorists would be exposed to work zones.

As noted previously, DM&E has proposed a grade crossing protection plan that addresses the road crossings of Alternative M-2. SEA has recommended that the Board require DM&E to comply with its grade crossing plan in the mitigation in Chapter 12 of this Final EIS.

SEA also has determined that accident frequencies at the 14 public highway/rail grade crossings would be increased as a result of trains operations over Alternative M-2. The results of SEA's analysis are presented below.

⁴ Seventeen roads would be crossed. However, three are proposed to be grade separated.

20 million tons annually

SEA's safety analysis has shown that for the 14 public highway/grade crossings required for Alternative M-2, the predicted accident frequency at the 20 million tons annual level of operation would range from 0.011 to 0.047. This translates into a range of estimated accident frequency from one accident every 91 years to one accident every 26 years, which is below the criteria for significance.

50 million tons annually

SEA's safety analysis has shown that for the 14 public highway/grade crossings required for Alternative M-2, the predicted accident frequency at the 50 million tons annual level of operation would range from 0.015 to 0.058. This translates into a range of estimated accident frequency from one accident every 67 years to one accident every 20 years. SEA determined that accident frequency could be significant at the grade crossing of Township Road 194.

100 million tons annually

SEA's safety analysis showed that for the 14 public highway/grade crossings required for Alternative M-2, the predicted accident frequency at the 100 million tons annual level of operation would range from 0.020 to 0.069. This translates into a range of estimated accident frequency from one accident every 50 years to one accident every 17. SEA determined that accident frequency would be significant at the grade crossing of Township Road 194.

Accidents at rural versus urban grade crossings

SEA received comments on the Draft EIS suggesting that accidents are more common at rural grade crossings and are more likely to result in fatalities than those at urban grade crossings. In response, SEA conducted additional investigation using information from the United States Department of Transportation (USDOT), National Highway Traffic Safety Administration (NHTSA). SEA searched the Fatality Analysis Reporting System (FARS)⁵ database for fatal accidents involving trains and automobiles at grade crossings in Minnesota. Data between the years 1994 and 1999 for Minnesota reported 68 fatal accidents at rail grade crossings. Fifty-seven of the 68 reported fatalities, approximately 83 percent, occurred at rural grade crossings. The FARS database considers an area urban when it has a population of 5,000 or greater. A 1994

⁵ The Fatality Analysis Reporting System is a database developed by the National Highway Traffic Safety Administration to support the traffic safety community in identifying traffic safety problems.

report by the NHTSA⁶ indicates that nationwide, 63 percent of fatal rail crossing accidents occur at rural grade crossings. Twelve grade crossings of Alternative M-2 are proposed for rural areas in Blue Earth County. The remaining 2 are proposed for the unincorporated areas of LeHillier and Mankato. SEA believes its analysis of accident frequency and recommended safety mitigation has taken into account the particular needs of rural grade crossings.

School bus safety

SEA received numerous comments expressing concern for the safety of children in school buses, both along the proposed new connecting rail line (Alternative M-2) and the existing rail line (Alternative M-3). SEA conducted additional investigation into the potential impacts of the project on school bus safety and determined that state laws are currently in place to protect children in buses from potential rail related accidents.

Each time a school bus carrying children is required to cross a rail line, the passengers of the bus would experience the potential risk of accident with a train. However, the State of Minnesota has regulations in place to minimize risks associated with school buses crossing rail lines. Minnesota State law requires that all school buses stop at least ten feet back from the nearest rail when crossing a rail line (bus drivers are advised to stop at least one bus length from the nearest rail). School buses are required to stop at rail crossings whether or not they contain passengers. The Minnesota Department of Public Safety has designed procedures for all drivers of school buses to observe at all railroad crossings. These include:

- turn on the hazard lights at least 100 feet from the nearest rail
- stop the bus at least 10 feet from the nearest rail
- be sure the Master Switch is OFF
- make sure all passengers are quiet
- open the door and driver's window
- listen and look in all directions
- check in both directions again

Before crossing the tracks, the driver should close the service door. It is recommended that school bus drivers not shift gears until they have successfully crossed the rail line, at which point the driver should turn the hazard lights off and turn the master switch on. Additionally, school

⁶ Terry Klein, Tina Morgan, Adrienne Weiner, *Rail-Highway Crossing Safety: Fatal Crash and Demographic Descriptors*, 1994

buses must not transport more passengers than what the bus will seat; no person should be standing while the bus is in motion.

SEA has reviewed Minnesota's guidance for school buses crossing rail lines and believes these regulations provide for the safe transport of children in school buses, so long as they are observed by bus drivers. Therefore, SEA does not believe the proposed project would have any negative effects on the safety of children in school buses.

SEA is recommending that DM&E be required to implement its grade crossing mitigation plan in its recommended mitigation in Chapter 12. Installation of the grade crossing warning devices proposed in this plan could prevent significant increases in accident frequency at these crossings. Additionally, SEA is also recommending, should Alternative M-2 be built, that the grade crossing warning device proposed at Township Road 194 be upgraded from the protection DM&E has proposed in its grade crossing mitigation plan (Chapter 12).

Based on the evaluation in the Draft and Final EIS, SEA has determined that, (with SEA's recommended mitigation in Chapter 12), Alternative M-2 would not result in significant impacts to grade crossing safety.

Alternative M-3: Existing Rail Corridor Alternative

There are 20 grade crossings along Alternative M-3, 15 of which are crossed by school buses. Chapter 3 of the Draft EIS presented a list of all roadways along Alternative M-3 that are crossed by school buses and the number of times per day each is crossed. Existing warning devices at these crossings include gates at five crossings, flashing lights at seven crossings, and passive warning devices at eight crossings. Safety issues related to rail line construction activities would be similar to those experienced as part of normal rail line maintenance and could include drivers attempting unsafe crossings when they are delayed and increased traffic on ancillary roadways due to temporary detours or motorists attempting to avoid construction areas.

In the Draft EIS, SEA evaluated the 20 grade crossings along Alternative M-3 and determined that operation of this alternative would result in an increase in accident frequency for these grade crossings. As set out in the Draft EIS, SEA determined that Alternative M-3 would have potentially significant impacts to grade crossing safety at Hubbell Street at 20 million tons annual and both Hubbell Street and 3rd Avenue at 50 million tons annual and 100 million tons annual. All other crossings would experience only insignificant increases in accident frequency.

Currently, Hubbell Street contains only crossbucks as warning devices; 3rd Avenue has flashing lights. DM&E has proposed to potentially close the crossing of Hubbell Street and install gates at 3rd Avenue should Alternative M-3 be built. SEA has reviewed this proposal and determined that closure of Hubbell Street would result in inconvenience to some local residents, but adequate alternate access across the rail line is available such that no significant impacts would be expected to result from closure of this crossing. Closure of Hubbell Street and the installation of gates at 3rd Avenue could prevent significant increases in accident frequency at these crossings.

Accidents at rural versus urban grade crossings

As described above, SEA conducted additional analysis for the number of fatal accidents at rural grade crossings for the Final EIS. Alternative M-3 would not have any grade crossings in rural areas of Blue Earth County.

School bus safety

As discussed previously, SEA has reviewed Minnesota's guidance for school buses crossing rail lines and believes these regulations provide for the safe transport of children in school buses, provided they are observed by bus drivers. Therefore, SEA does not believe the proposed project would have any negative affects on the safety of children in school buses.

Based on the evaluation in the Draft and Final EIS, SEA has determined that, (with SEA's recommended mitigation in Chapter 12), Alternative M-3 would not result in significant impacts to grade crossing safety.

7.4.12 HAZARDOUS MATERIALS

This section describes the results of SEA's analysis of potential impacts of the Mankato alternatives associated with the transport of hazardous materials and hazardous sites potentially located along the rail line.

Transportation of Hazardous Materials

As discussed in Chapter 3 of the Draft EIS, DM&E currently transports approximately 200-250 carloads per year of hazardous chemicals, including liquified petroleum gas (LPG), anhydrous ammonia, phosphoric acid, ferric chloride, fuel oil, and ethylene acetyl. Many of the hazardous chemicals transported by DM&E are associated with agriculture activities. As reported in Chapter 3 of the Draft EIS, the majority of the carloads of these chemicals transported by DM&E contain LPG, phosphoric acid, and anhydrous ammonia.

Alternative M-1: No-Action Alternative

As stated in the Draft EIS, construction and operation of Alternative M-1 would not result in an increase in the types of hazardous materials being transported by DM&E. The likelihood of an accident involving hazardous materials is low due to the minimal quantities of these materials transported by DM&E. However, the poor condition of the track under this alternative increases the chances of a derailment that could result in the accidental spill of hazardous chemicals.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS reports that neither the construction or operation of this alternative would result in increased transportation of the hazardous chemicals transported by DM&E. Because no rail line currently exists in the Alternative M-2 project area, no hazardous materials are currently transported by rail through this area. The construction of a new rail line would introduce the opportunity for hazardous materials to be transported and potentially spilled along Alternative M-2. But these materials would be those currently transported by DM&E. Construction and operation of Alternative M-2 would not increase the amount of hazardous materials transported by DM&E. Given the low quantities of hazardous material that are currently transported by DM&E and the anticipated increased safety and reliability of the new track, an accident resulting in a hazardous material spill is considered unlikely. Accordingly, SEA has determined that Alternative M-2 would not result in significant impacts from hazardous materials transportation.

Alternative M-3: Existing Rail Corridor Alternative

Neither construction nor operation of this alternative would result in increased transportation of hazardous materials. Given the low quantities of hazardous materials that are currently transported by DM&E and the anticipated increased safety and reliability of DM&E's system if the PRB Expansion Project is approved and implemented, an accident resulting in a hazardous material spill is considered unlikely. Therefore, SEA has determined that Alternative M-3 would not result in significant impacts from hazardous materials transportation.

Hazardous Material Sites

Alternative M-1: No-Action Alternative

Impacts to hazardous material sites as a result of this alternative are reported in the Draft EIS in Chapter 3. Because no new construction would occur with this alternative, the possibility

of discovering new hazardous material sites is unlikely. No increase in impacts resulting from hazardous material sites is expected with Alternative M-1.

Alternative M-2: Southern Route Alternative

The potential hazardous material sites located along Alternative M-2 are discussed in the Draft EIS in Chapter 3. There are seven Leaking Underground Storage Tanks (LUST) sites, and four ERNS sites listed in Blue Earth County. Because the specific locations of these sites have not been identified, earth moving activity could expose a hazardous material site during construction of the rail line. Should such a discovery occur, rail line workers, construction workers, and nearby residents, as well as wildlife, vegetation, and water resources could be exposed to hazardous materials. No disturbance to hazardous material sites would be expected as a result of the operation of this alternative.

To minimize or eliminate the risk of disturbing a site containing hazardous materials, SEA is recommending as mitigation that DM&E be required to coordinate with EPA, the Minnesota Pollution Control Agency, and the Minnesota Department of Natural Resources to determine if contaminated sites occur within the proposed right-of-way of Alternative M-2 and take appropriate action to avoid disturbing them. SEA believes that, with SEA's recommended mitigation in Chapter 12, construction of Alternative M-2 would not result in significant impacts to hazardous materials sites.

Alternative M-3: Existing Rail Corridor Alternative

Impacts to hazardous material sites as a result of this alternative are reported in the Draft EIS in Chapter 3. There are seven LUST sites, and four ERNS sites listed in Blue Earth County. Because the specific locations of these sites have not been identified, earth moving activity could expose a hazardous material site during construction activities. However, the limited earth work required for Alternative M-3 would make such an event unlikely. No disturbance to hazardous material sites would be expected as a result of the operation of this alternative.

As with Alternative M-2, to minimize or eliminate the risk of disturbing sites containing hazardous materials, SEA is recommending as mitigation that DM&E be required to coordinate with EPA, the Minnesota Pollution Control Agency, and the Minnesota Department of Environmental and Natural Resources Protection to determine if contaminated sites occur within the proposed rights-of-way and develop appropriate procedures to avoid disturbing them. With SEA's recommended mitigation in Chapter 12, construction of Alternative M-3 should not result in significant impacts to hazardous materials sites.

7.4.13 ENERGY RESOURCES

This section contains further discussion on the project-related impacts to the transportation of energy resources and the utilization of energy resources.

Transportation of Energy Resources

As described in Chapter 3 of the Draft EIS, the PRB Expansion Project is expected to provide more cost-effective transportation of PRB coal.

Utilization of Energy Resources

Chapter 3 of the Draft EIS, describes how the construction of the proposed DM&E rail line would provide a shorter, more cost-effective route for the transport of PRB coal to potential markets. Because Alternative M-3 is approximately 1.1 miles longer than Alternative M-2, more diesel fuel would be required to transport coal over Alternative M-3, making this alternative less energy efficient to operate than Alternative M-2. Table 7-5 provides a comparison of the gallons of diesel fuel required to move coal over the Mankato Alternatives at three levels of operation (11, 21, and 37 trains per day).

Table 7-5				
Fuel consumption in gallons per year for Mankato Alternatives				
Alternative	Distance	Gallons of fuel per year		
		11 trains per day	21 trains per day	37 trains per day
Alternative M-2	14.8 miles	671,623 gal/year	1,282,189 gal/year	2,259,094 gal/year
Alternative M-3	15.9 miles	721,571 gal/year	1,377,512 gal/year	2,427,018 gal/year
Difference of	1.1 miles	49,949 additional gallons per year	95,324 additional gallons per year	167,924 additional gallons per year
Based on 17,045 tons per loaded train, 5,545 tons per empty train, using a factor of 993.8 ton miles per gallon of fuel. Train operation 363 days per year.				

7.4.14 CULTURAL RESOURCES

SEA conducted a thorough investigation of the known cultural resources sites recorded with the Minnesota SHPO. This section discusses the known cultural resources sites that are

located within the proposed rights-of-way of the Mankato alternatives, and could therefore be adversely affected by project-related construction and reconstruction activities. There may be others as yet unknown, unidentified, or unevaluated structures and sites of historic and cultural significance along the existing and proposed alternative rights-of-way. However, only sites that are listed or are eligible for listing on the National Register of Historic Places (NRHP) or which were identified by SEA during site investigations along the existing rail line are evaluated as part of this EIS.

Alternative M-1: No-Action Alternative

Because there would be no construction activity associated with this alternative, no impacts to cultural resources would occur.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS stated that 19 sites and 4 site leads are recorded within 1.0 mile of the proposed alignment. Three of these sites are considered eligible for the NRHP and could be affected by this project. Three sites would be within the actual Alternative M-2 right-of-way, including one that is eligible for the NRHP. Table 7-6 contains descriptions of these sites. Any sites eligible for or listed on the NRHP could be adversely affected by construction and operation of Alternative M-2 and would require mitigation in accordance with the Programmatic Agreement (PA). Further evaluation of and coordination with the Minnesota SHPO would be necessary to determine the potential extent and significance of impacts caused by the construction of Alternative M-2.

Table 7-6 Known Archaeological Sites and "Sites Leads" Mankato-Alternative M-2			
Site #	Type	Prehistoric/Historic	NRHP Status
21BE0067	Lithic Scatter	Prehistoric	Unevaluated
21BE0146	Unknown	Unknown	Unknown
21BE0160	Unknown	Unknown	Unknown
21BE0113	Artifact Scatter	Prehistoric/historic	Unevaluated
21BE0026	Artifact Scatter	Prehistoric	Unevaluated

Table 7-6 Known Archaeological Sites and “Sites Leads” Mankato-Alternative M-2			
Site #	Type	Prehistoric/Historic	NRHP Status
21BE0111*	Artifact Scatter	Prehistoric	Eligible
21BE0112	Lithic Scatter	Prehistoric	Eligible
21BE0110	Artifact Scatter	Prehistoric	Unevaluated
21BE0107	Artifact Scatter	Prehistoric	Unevaluated
21BE0137	Artifact Scatter	Prehistoric	Eligible
21BEn	Site Lead	Unknown	Unevaluated
21BE0108	Artifact Scatter	Prehistoric	Not Eligible
21BE0106	Artifact Scatter	Prehistoric	Unevaluated
21BE0038	Habitation	Prehistoric	Unevaluated
21BE0008*	Mound	Unknown	Unevaluated
21BE0020*	Artifact Scatter	Prehistoric/Historic	Unevaluated
21BE0157	Lithic Scatter	Prehistoric	Unevaluated
21BE0063	Lithic Scatter	Prehistoric	Unevaluated
21BEr	Site Lead	Unknown	Unevaluated
21BEbo	Site Lead	Unknown	Unevaluated
21BE0153 & 0033	Artifact Scatter	Prehistoric	Unevaluated
21BEbj	Site Lead	Unknown	Unevaluated
21BE0007	Mound	Prehistoric	Unevaluated
* Sites would be within rail line right-of-way.			

Alternative M-3: Existing Rail Corridor Alternative

A complete evaluation of the cultural resources that exist within or near the existing DM&E and UP rail corridors as well as an explanation of the potential impacts to these resources is found in Chapter 3 of the Draft EIS. The list of potential cultural resources within or near this alternative include structures associated with the railroad, such as stone culverts, open pile trestles, the depot, and the actual rail line. Fifteen structures along the existing rail line are considered eligible for the NRHP or contribute to the historic character of the existing rail line. Some of the structures within the existing corridor, particularly culverts, are expected to be removed as a result of this alternative, although the bridge structures may be reconstructed. Any structures eligible for or listed on the NRHP could be adversely affected by construction and operation of Alternative M-3 and would require mitigation in accordance with the Programmatic Agreement (PA).

In addition, 14 archaeological sites were recorded in the vicinity of Alternative M-3. None of these sites would be within the right-of-way for this alternative. Therefore, Alternative M-3 would have no impact on archaeological sites.

7.4.15 SOCIOECONOMICS

The following discusses the potential socioeconomic effects of the Mankato alternatives, including effects on population, employment, tax revenue, and public services.

Alternative M-1: No-Action Alternative

Alternative M-1 would result in no change to the existing social or economic characteristics of the Mankato area. No new individuals would relocate to Mankato, no new jobs would be created, and tax revenues would remain the same.

Alternative M-2: Southern Route Alternative

Chapter 3 of the Draft EIS explained that construction of the new rail line would provide employment opportunities both directly related and indirectly related to rail construction. Income from rail line construction work in Blue Earth County would total an estimated \$13.8 million dollars, generating an estimated \$3.2 million in sales and use taxes. The communities within Blue Earth County, including primarily Mankato, could experience increases in sales at businesses such as restaurants, service stations, convenience stores, rental and hotel properties, and construction material suppliers, while rail construction workers are in the area.

During operation of the project, the presence of two rail carriers in the area could potentially make property in the area attractive to new industries, which would benefit the local economy. However, this type of development along Alternative M-2 currently would be contrary to the Blue Earth County land use plan, which emphasizes continued agricultural use and controlled development of rural residential subdivisions in areas crossed by Alternative M-2.

SEA received comments from Blue Earth County expressing concern that the Mount Kato Ski Area could experience negative impacts during construction and operation of Alternative M-2 due to the proximity of the proposed rail line to the ski facility. In response, SEA contacted DM&E to obtain additional information on DM&E's planned rail line design across this area. To minimize the amount of land required for the rail bed across Mount Kato property, DM&E indicated it would likely construct a retaining wall on the north side of the rail line, between the rail line and the chair lifts. The retaining wall would enable DM&E to construct a raised rail bed of minimal right-of-way width while still maintaining a stable rail bed. The use of a retaining wall would allow the rail line to cross the south side of Mount Kato, taking only a narrow strip of property along the south side of the area and maintain a sufficient distance between the rail line and the chair lifts and south ski slopes to ensure continued and safe operation of the ski area.

SEA also received comments from Blue Earth County stating that the loss of crop land required to construct Alternative M-2 would create negative impacts to the local economy. In response, SEA contacted the University of Minnesota Extension Service in Olmsted County, which provided SEA with year 2000 crop production figures for the State of Minnesota, including Blue Earth County. Using this data, SEA calculated the productivity of cropland in bushels per acre for the top two crops grown in Blue Earth County, corn and soybeans. Based on bushels per acre, the 291.4 acres of crop land removed from production (this figure represents only land converted to rail line right-of-way), and price paid to farmers per bushel,⁷ SEA calculated the potential loss in crop income resulting from the conversion of crop land to rail line right-of-way.

Based on this analysis, SEA estimates that a total annual loss of farm income of approximately \$73,316 could result from the conversion of crop land into rail line right-of-way. This figure does not account for land left unproductive due to poor access, or reduced size, which could increase the annual lost revenue to nearly \$100,000. These losses represent gross income per acre of cropland. However, once these areas are converted to rail line right-of-way, farmers, while no longer receiving revenue from these lands, would no longer incur the expenses associated with seed, fertilizer, fuel, and manhours necessary to plant, cultivate, and harvest these

⁷ Crop price figures were obtained from a July, 31, 2001 Crop Report, issued by the Minnesota Agricultural Statistic Service, a joint service of the U.S. and Minnesota Departments of Agriculture.

areas. Some losses in efficiency due to farming smaller fields and dealing with point rows would likely occur. However, net revenue losses would likely be significantly less than \$100,000. While these revenue losses may represent a substantial loss to some individual farmers, they must be balanced against the potential economic benefits that Alternative M-2 could bring to Blue Earth County. Accordingly, SEA has determined that Alternative M-2 would not result in significant adverse socioeconomic impacts.

Alternative M-3: Existing Rail Corridor Alternative

Because SEA evaluated potential socioeconomic impacts at the county level in the Draft EIS, SEA described the socioeconomic impacts for Alternative M-3 as similar to those projected for Alternative M-2 (See Draft EIS, Chapter 3). There would be benefits to the Mankato economy as a result of Alternative M-3. However, the Draft EIS explained that businesses located along Alternative M-3 could experience temporary inconveniences during construction. A quarry would be crossed by Alternative M-3. If this quarry could provide suitable material for rail line construction, it would likely see an increase in business during project-related rail line construction. Also, because Alternative M-3 would not require the conversion of agricultural land, the socioeconomic impacts of the loss of agricultural land under Alternative M-2 would not occur. During operation, businesses along Alternative M-3 could experience increased noise from additional trains.

SEA received comments concerning the effect the increased level of rail operations in the existing rail corridor of Alternative M-3 could have on residential property values. The Draft EIS, Chapter 3, described the potential impacts to residential land in Minnesota. SEA explained that because numerous factors affect property values, it is difficult to determine if the proposed increases in rail traffic would have any significant impact on them. However, some negative impacts to property values could occur as a result of increased trains.

In response to the comments received on this issue, SEA conducted additional investigation regarding the likely potential impact on residential property values from the proposed project. SEA's further analysis confirmed that residential property values are based on a number of factors, including:

- supply and demand
- economic trends
- season of the year
- location in relation to amenities

- geographic location (distance from favorable and non-favorable features, including rail lines)
- social location

These factors all combine to determine the desirability of a particular piece of real estate, as discussed in detail in Chapter 3 of this Final EIS. In short, SEA reaffirms here its conclusion in the Draft EIS: while some decline in residential property values may occur as a result of the proposed project, SEA does not anticipate the decline would be significant.

7.4.16 ENVIRONMENTAL JUSTICE

SEA conducted an extensive analysis to determine the potential for disproportionate adverse impacts to occur to minority or low-income communities, collectively referred to as environmental justice communities, as discussed in detail in Appendix D of the Draft EIS. SEA's criteria for classification of a census block group as environmental justice status in the Draft EIS were:

- at least one-half of the census block group was of minority status
- at least one-half of the census block group was of low-income status
- the percentage of minority population for the census block group was at least 10 percentage points higher than the minority percentage for the entire county in which the census block group is located
- the percentage of low-income population for the census block group was at least 10 percentage points higher than for the entire county in which the census block group is located.

Based on these criteria, SEA determined the number of environmental justice communities that would be crossed by the Mankato Alternatives. SEA determined that Alternatives M-1 and M-2 would cross one potential environmental justice community. Alternative M-3 would cross one potential environmental justice community and would potentially affect five additional census block groups, based on SEA's area of potential project effects (corridor along the alternative extending outward for approximately 2,200 feet on both sides of the rail line) for potential environmental justice communities. SEA determined in the Draft EIS that the 100 million ton level of rail operations would result in disproportionate adverse noise impacts for one low-income census block group along Alternative M-3.

SEA received comments on the environmental justice methodology SEA employed. As discussed in detail in this Final EIS, based on comments submitted by EPA, SEA used additional criteria to identify potential low-income and minority populations but continued to rely on 1990

census data in this Final EIS. Appendix N contains a detailed discussion of SEA's revised environmental justice methodology. The results of SEA's revised analysis for the Mankato Alternative follows.

Alternative M-1: No-Action Alternative

Alternative M-1 would involve continuation of the status quo for rail operations in Mankato. UP's existing rail line crosses one census block group determined by SEA to meet the low-income criteria for environmental justice. This census block group is classified as environmental justice due to having a percentage of low-income households greater than 1.5 times the percentage of low-income households for the State of Minnesota. No additional impacts would be expected to occur to these communities under Alternative M-1.

Alternative M-2: Mankato South Route

Alternative M-2 would cross one census block group determined by SEA to meet the criteria for environmental justice. This census block group is classified as environmental justice due to the percentage of low-income households within the census block group being 1.5 or more times the percentage of low-income households for State of Minnesota.

SEA evaluated the impacts of the proposed construction of a new rail line and level of rail traffic to this environmental justice census block group and compared these impacts to the impacts expected to the non-environmental justice census block groups (Appendix N). SEA's analysis determined that Alternative M-2 would have no disproportionate impacts to environmental justice communities.

Alternative M-3: Existing Rail Corridor Alternative

Alternative M-3 would cross one census block group determined by SEA to meet the criteria for environmental justice and potentially affect five others. Three of these census block groups are classified as environmental justice due to 50 percent of the households within the census blocks meeting the criteria as low-income. Two census block groups are classified as environmental justice due to having a percentage of low-income households at or below 1.5 times the percentage of low-income households for the State of Minnesota. The remaining census block group was determined to meet the criteria for classification as an environmental justice community due to both the percentage of low-income households exceeding 1.5 times the percentage for the state and the minority population percentage exceeding 1.5 times the minority percentage for the State of Minnesota.

SEA evaluated the impacts of the proposed construction of a new rail line and level of rail traffic to these environmental justice census block groups and compared these impacts to the impacts expected to the non-environmental justice census block groups (Appendix N). SEA's analysis determined that one low-income census block group would experience disproportionate impacts due to increased noise. Disproportionate impacts would occur at the 50 million tons annually and 100 million tons annually levels of rail operations.

In addition, SEA determined that the significant increase in accident frequency due to operation of Alternative M-3 at the crossing of 3rd Avenue at the 50 and 100 million-ton level of rail operations would result in disproportionate impacts to this low-income census block group. However, SEA has included recommended mitigation in Chapter 12 that would minimize the disproportionate impacts of Alternative M-3 due to noise and safety. As no significant impacts to noise sensitive receptors or safety are anticipated as a result of Alternative M-3, it would not have disproportionately high and adverse impacts to this environmental justice community.

7.4.17 RECREATION

A wide variety of recreational opportunities are available in Mankato and the surrounding area. The following is a summary of these opportunities and the potential effects of the construction and operation of Alternative M-2 and M-3.

Alternative M-1: No-Action Alternative

Because Alternative M-1 would not involve any construction or change in rail operations, no impacts to recreation are expected to occur as a result of this alternative.

Alternative M-2: Southern Route Alternative

A variety of recreational opportunities are available along the alignment of Alternative M-2, including hunting, fishing, camping, snowmobiling, hiking, skiing, and bicycling. A regional system of bicycle and walking trails provides recreational opportunities in the Mankato area. Alternative M-2 would cross the Red Jacket Trail and the South Route Trail. Numerous parks are also located along Alternative M-2.

SEA received many comments expressing concern for the impact of Alternative M-2 on pedestrian and bike trails, including the Red Jacket and South Route trails. These comments generally supported SEA's conclusion in the Draft EIS that Alternative M-2 would affect users of these trails, creating noise and safety concerns during construction and operation of the rail line that could detract from the recreational use or enjoyment of these trails. SEA determined during

additional site visits to the Mankato area, that a portion of the newly constructed South Route Trail is within the proposed corridor for Alternative M-2. Construction of Alternative M-2 would require relocation of a portion of this trail. Alternative M-2 would cross the Red Jacket Trail near State Highway 66.

Locations where trails would be crossed by Alternative M-2 would require the construction of trail crossings. Trail users would be affected during the construction phase of the project by trail closures at rail crossings as well as increased dust, noise, and human activity. Operational impacts would include noise from passing trains and safety concerns associated with trail crossing of the proposed rail line.

The Draft EIS indicated that Alternative M-2 would not cross the Mount Kato Ski area. However, following additional engineering studies, DM&E revised the alignment of Alternative M-2 to avoid difficult topography and the need to cross County Highway 90, so that Alternative M-2 now would cross the southern edge of the ski area. As presently aligned, Alternative M-2 would come within 200 feet of the ski lifts on the south side of the Mount Kato Ski Area. Alternative M-2 would not interfere with the entrance to Mount Kato; the main entrance to Mount Kato Ski Area is off State Highway 66.

As discussed previously, SEA consulted with DM&E to ascertain DM&E's design plans for crossing the ski area. DM&E indicated that it would construct a retaining wall between Alternative M-2 and the ski lifts. By utilizing a retaining wall, DM&E indicated that it would be able to reduce the area required to construct its rail bed. Use of this retaining wall would enable DM&E to operate Alternative M-2 with reduced impact to operations at Mount Kato.

Additionally, representatives of Mount Kato and Blue Earth County commented that construction and operation of Alternative M-2 could deter patronage of the area, resulting in a financial loss. In response, SEA identified and investigated two areas, Winter Park in Colorado and Snow Creek in Missouri, which are adjacent to active rail lines.

Winter Park, Colorado, a premier ski resort west of Denver, Colorado, has an active UP rail line within 0.25 mile of their main resort area. SEA learned that the rail line is used to transport coal, and that coal trains pass by the resort without causing any apparent impacts to the resort or visitors. The resort does not experience problems with dust or noise from passing trains. Passenger trains use this same rail line and Winter Park Ski Resort is a designated stop for both Amtrak and the Rio Grande line. Both trains provide transportation service for resort visitors between Denver and Winter Park.

Snow Creek Ski Resort in Weston, Missouri has an active Burlington Northern Santa Fe (BNSF) rail line within 0.5 mile of their facility. Snow Creek attracts 40,000 to 50,000 visitors per year and is similar to Mount Kato in size and facilities. Snow Creek's management indicated that Snow Creek is negatively affected by the fact that the rail line crosses the entrance to Snow Creek. Passing trains block the entrance to the ski area causing traffic to stop on the State Highway from which motorists access the resort. The BNSF rail line adjacent to Snow Creek is one of BNSF's main routes for movement of PRB coal and other commodities into Kansas City for interchange with other rail carriers or routing to southern and eastern areas of the country. Despite the frequent traffic along this rail line, Snow Creek's management expressed no problems with dust or noise from passing trains, but because visitors are required to cross at grade to enter the facility, Snow Creek views the proximity to the rail line as a significant safety concern. However, the Snow Creek area and access to it were both constructed with the knowledge that the nearby BNSF rail line was an active one.

Based on this additional analysis, SEA concludes that the operation of a downhill ski facility, even if crossed by an active rail line, is possible, provided adequate design and safety considerations are implemented. SEA does not expect that Alternative M-2 would have significant impacts to the operation of Mount Kato.

Alternative M-3: Existing Rail Corridor Alternative

Chapter 3 of the Draft EIS described the potential impacts to parks and multi-use trails within the Alternative M-3 project area. Alternative M-3 is adjacent to Sibley Park, the Sakatah Singing Hills Trail, the Minnesota River Trail, Land of Memories Park, and Reconciliation Park. Construction of Alternative M-3 would create temporary impacts to these facilities from increased noise, dust, and public access. However, these recreational areas currently experience the presence of an active rail line. Construction activities would be similar to maintenance activities that currently occur along the existing rail line.

SEA received comments from Tribes and citizens expressing concern for the potential impacts of Alternative M-3 to Land of Memories Park, which is adjacent to approximately 0.5 mile of the rail line. Commenters indicated that the park is heavily used for athletic games, picnics, and the annual Dakota Pow Wow, which attracts thousands of visitors. During rail line operations, increased numbers of trains would increase noise levels, creating short-term, but potentially frequent, disturbance to park users. Additionally, access to Land of Memories Park could be impeded by passing trains due to the only access to the park involving a grade crossing of Alternative M-3.

Activities at Land of Memories Park are currently subjected to noise disturbance from passing trains. Alternative M-3 would likely increase the number of passing trains and noise disturbances, but these disturbances would be consistent with those already occurring and would not be expected to significantly impact activities at the park. Trains crossing the entrance to the park could cause substantial vehicle backups into the residential area south of the park during major events at the park. However, because train passings would only last a few minutes, significant delays to park users are not expected. Following the passage of a train, traffic waiting to enter or exit the park would be expected to clear quickly.

Additionally, Tribes expressed concern for project impacts to Reconciliation Park in downtown Mankato. Reconciliation Park, dedicated in 1997, is a small park approximately 40 feet from the edge of the existing rail corridor. It contains a statue of a bison and commemorates the execution of 38 Dakota following fighting between the Dakota and Minnesota settlers in 1862 known as the Dakota Conflict. The Tribes expressed concern that increased vibration from project-related operation of unit coal trains could damage the statue. Additionally, they stated that the noise created by passing trains would alter the setting of the park and reduce its attractiveness for meditation. SEA conducted vibration testing and obtained vibration readings from passing trains approximately 400 feet from the bison statue. Based on this testing and the subsequent modeling, SEA has determined that vibration levels from operation of unit coal trains associated with this project would be insufficient to cause damage to structures over 50 feet from the rail line. As the statue would be approximately 100 feet from Alternative M-3, no damage to the statue is expected. Additionally, the statue is currently and would continue to be exposed to vibration from unit coal trains operated by UP along the existing rail line. These trains are closer to the statue than would be DM&E trains operating on Alternative M-3.

Increased rail operations would increase both the frequency and level of noise experienced at Reconciliation Park. However, the park is currently subjected to noise from passing trains as well as substantial noise from vehicles traveling on Front Street through downtown Mankato, with noise level as high as 76 dBA recorded by SEA during site visits in May, 2001. While Alternative M-3 would result in an increased number of passing trains, the noise created would be consistent with that already occurring at the park. Therefore, no significant impacts to Reconciliation Park are anticipated as a result of Alternative M-3.

7.4.18 AESTHETICS

Construction and operation of the Mankato alternatives would potentially result in alterations to the landscape, thus changing the viewshed, as discussed below.

Alternative M-1: No-Action Alternative

Because no construction would occur, and operation would remain at the same level, no impact to the scenic value of the project area would occur as a result of Alternative M-1. The area along Alternative M-1 would not experience the temporary visual impacts associated with construction-related earth disturbance or rail bed and rail line reconstruction. However, it would also not benefit from the visual improvement of an upgraded rail line and the general cleanup of debris in the existing rail line right-of-way.

Alternative M-2: Southern Route Alternative

As described throughout this chapter, the Alternative M-2 project area is primarily rural, consisting of farms, rural residences, and woodlands. Portions of the Alternative M-2 project area recently experienced changes in visual quality during the construction of County Highway 90. Construction of this roadway required cuts in the slopes adjacent to the Blue Earth River, construction of a raised bed for the roadway, and a bridge over the Blue Earth River. Many of the visual impacts associated with rail line construction would be similar to those of highway construction, including the presence of construction equipment, and exposed earth due to grading activity.

However, unlike highway construction that can generally follow the contours of the land, the rail bed grade requirements of rail line construction do not allow the same level of flexibility. Construction operations necessary to achieve a suitable grade would potentially require deeper cuts into hillsides and higher fills in low areas and valleys than those of the highway. This would further modify the visual quality of the rural setting.

Following the construction of Alternative M-2, visual impacts associated with construction activities, such as disturbed soil, and the presence of heavy equipment, would be eliminated. The operating rail line would present a new visual element in the project area, contrasting with the rural setting, but not significantly different than the visual character of roads, particularly County Highway 90, which Alternative M-2 would parallel for approximately 1.0 mile, in the project area. While the Blue Earth River Valley presents a scenic setting, the construction of County Highway 90 has introduced a modern highway and bridge into the landscape, not dissimilar to that potentially created by Alternative M-2.

Based on the evaluation in the Draft and Final EIS, SEA has determined that Alternative M-2 would not result in significant aesthetic impacts.

Alternative M-3: Existing Rail Corridor Alternative

Construction of Alternative M-3 would introduce a visual distraction to the project area, as described in Chapter 3 of the Draft EIS. The area along Alternative M-3 would experience temporary visual impacts from construction activities associated with Alternative M-3, including the presence of construction and earth moving equipment in locations where new rail line would be constructed and the general distraction of ground disturbance. These impacts would be most obvious from locations near the area of construction, but could temporarily affect the overall visual appearance of the entire area along Alternative M-3.

During operation, the visual quality of the Alternative M-3 project area would likely improve. The area along Alternative M-3 would benefit from the visual improvement of an upgraded rail line and the general clean-up of debris in the existing rail line right-of-way.

Based on the evaluation in the Draft and Final EIS, SEA has determined that Alternative M-3 would not result in significant aesthetic impacts.

7.5 SEA'S RECOMMENDATIONS

Based on all the available information, SEA has determined that both Alternatives M-2 and M-3, without mitigation, would have potentially significant environmental impacts, although to different resources. However, should the Board ultimately approve the project, imposition of SEA's recommended mitigation measures included in Chapter 12 would minimize these impacts for both Alternative M-2 and M-3.

As discussed above, locating additional rail line construction in an existing rail corridor generally is preferable and has less impact to the environment than constructing new rail line on previously undisturbed land. SEA has concluded that the potential impacts of Alternative M-3 are less significant than those associated with Alternative M-2 with implementation of appropriate mitigation. Therefore, SEA believes that Alternative M-3 is the environmentally preferable alternative for the Mankato area.

Nevertheless, the Board has no authority to force UP to allow DM&E to construct new rail line within the UP-owned right-of-way, and as a result, Alternative M-3 could not be built and operated without some type of agreement between UP and DM&E. Absent an agreement between DM&E and UP, Alternative M-2 is the only feasible action alternative in Mankato. Therefore, SEA recommends that, should the Board approve the project and should no agreement exist permitting DM&E to construct a line on the UP corridor, it approve construction and operation of Alternative M-2. In the alternative, however, should the Board approve the project

and should UP permit DM&E to construct and operate a rail line within UP's right-of-way, SEA recommends Alternative M-3.

Because SEA has recommended Alternative M-2, and Alternative M-3 in the alternative, it has included recommended mitigation for both Alternative M-2 and Alternative M-3 in Chapter 12.

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